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FEDERAL-GRANT RESEARCH
at the
STATE AGRICULTURAL
EXPERIMENT STATIONS

Projects on

MEAT: RED MEAT AND POULTRY MEAT

Part 26

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

Compiled December 1958 by

The State Experiment Stations Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C., for use of workers in agricultural research in the subject-matter areas presented. For information on specific research projects write to the Director of the Station where the research is being conducted.

Issued January 1959

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INTRODUCTION

This compilation is one of a series providing information on State agricultural experiment station research supported by Federal-grant funds appropriated annually by Congress under authorization of the Hatch Act of 1887, as amended and approved Aug. 11, 1955, and Section 204(b) of the Agricultural Marketing Act of 1946. It is prepared for use by research workers in the subject-matter areas presented. Only that part of each State's research program supported by Federal-grant moneys is included.

In addition to the Federal-grant moneys, the State experiment stations receive some Federal support through cooperative agreements or contracts with the U. S. Department of Agriculture. Information on such research, along with other departmental research, is available in the Central Project Office, Agricultural Research Service.

A substantial part of each State agricultural experiment station's research is supported with moneys appropriated by the respective State or Territorial Legislatures and through other forms of private and public financing. Information on current agricultural research at the stations which is not financed under the Federal-grant program or through USDA cooperation can be obtained from experiment station directors.

The information given in the series of Federal-grant compilations includes the title and objectives of each Federal-grant project pertaining to the subject given on the cover. The identification of each project gives the department(s) conducting the research, the station number of the project, and the number of the regional project if it is a contributing project.

Relevant regional projects, if any, appear at the end of the compilation. States having projects contributing to regional projects are indicated. The Roman numeral (and capital letter) refer to the location in the summary of the contributing project title and objectives. The States are grouped into four major regions. These are designated NC-North Central, NE-Northeastern, S-Southern, and W-Western. The capital letter "M" following the letters for the region indicates regional marketing projects.

I. RED MEAT

A. Carcass Quality

1. Effect of Production Practices

a. Beef Cattle

Ala. Improvement of Beef Cattle of Alabama Through Breeding Methods. To (1) determine effectiveness of selection for total performance in beef cattle; (2) develop criteria for evaluating and selecting breeding animals; and (3) determine influence of heterosis on rate of gain, carcass quality, and cow performance.
Anim. Husb. and Nutr. 525 (S-10)

Ariz. Influence of Forage Harvesting and Feeding Methods on Beef Production. To (1) study most efficient method of harvest of forage crops in a livestock feeding program; (2) determine relative amount of beef produced per acre of land, as influenced by method of harvest; and (3) ascertain effects of harvest methods upon agronomic phases of the program such as botanical composition, stand longevity, weed infestation, and fertilizer needs.
Anim. Sci., Agron. and Range Mgt. 248

Ark. Systems of Finishing Beef Animals on Feed Crops Adapted to the Delta Section of Arkansas. To (1) determine value of rice, grain, sorghums, oats, barley, corn, cottonseed and soybeans in beef finishing; and (2) study systems of feeding and management designed to obtain most profitable use of adapted feed and forage crops under delta conditions.
Anim. Indus. and Vet. Sci. 495

Calif. The Effects of Hormones on the Growth and Fattening of Meat Animals. To determine (1) types of hormones best suited for increasing growth or carcass quality; (2) most effective dose; (3) influence of age, sex, and dietary conditions on effect of treatment; and (4) mechanism by which hormones influence metabolic activities.
Vet. Med. 1662 Coop. FES

Ga. The Use of Diethylstilbestrol Implants in Beef Production. To (1) compare oral administration and low level implantations of stilbestrol in steers on various rations in dry lot; (2) determine influence of low level implantations of stilbestrol in steer calves and yearlings on different types of pasture; (3) determine if previously implanted feeder cattle will respond to further stilbestrol treatment when fattened in feed lot; (4) test relative effects of stilbestrol implants on potentially low and high gaining steers; (5) further test possibility of a stilbestrol-phenothiazine interaction in calves; (6) determine influence of low level implantations of stilbestrol on breeding efficiency of heifers when treated as calves and/or yearlings; and (7) determine if estrogenic residues are present in beef from steers implanted with low levels of stilbestrol.

Anim. Indus. 320

Hawaii The Improvement of Beef Cattle Through the Application of Breeding Methods. To (1) develop inbred lines of beef cattle that are useful in improvement of characters such as rate of gain, economy of gain, carcass quality, fertility and longevity; (2) develop effective breeding techniques for improving productiveness of beef cattle; and (3) investigate productiveness of existing lines of cattle.

Anim. Sci. 268 (W-1)

Hawaii An Investigation of the Influence of Different Dietary Fats on Tissue Lipids of Chickens. To (1) measure in chickens the influence of fat deficiency and of nature of dietary fat on: liver cholesterol synthesis, blood cholesterol levels, lipid deposition in arteries, lipoprotein lipase activity, degree of saturation of fats deposited in the tissues; and (2) determine if there is any correlation between tissue fat saturation or lipoprotein lipase activity and atheroschlerosis.

Home Econ. and Nutr., Poultry Sci. 526

Idaho The Improvement of Beef Cattle Through the Application of Breeding Methods: (1) Linebreeding Within the Hereford and Shorthorn Breeds; (2) By Testing Linebred Sires Within the Various Lines Which Will be Developed. To develop lines of beef cattle that will result in improvement in such characters as rate and economy of gain, fertility, nursing ability, longevity, and carcass quality.

Anim. Husb. 280 (W-1) Coop. ARS

Idaho Economics of Transporting Idaho's Feeder and Slaughter Livestock. To (1) describe structure of rail and truck rates for movement of feeder and slaughter livestock from representative origins in Idaho to representative destinations within the State and in other Western States; (2) appraise equity of rate to these points and the transportation services which are furnished; and (3) evaluate influence of transportation costs and facilities on movement and location of stock in Idaho.

Agr. Econ. 364 Coop. AMS

Ind. The Improvement of Dairy Cattle Through Crossbreeding. To determine (1) possible heterosis or hybrid vigor in cattle by comparing milk and beef producing qualities of crossbreds from Red Dane, Red Poll, and Milking Shorthorn with purebred animals of same three breeds produced by same sires; (2) possible specific usefulness of Red Dane in crosses with other two breeds apart from possible general effects of crossbreeding; and (3) characteristics of udder body conformation as affected by inheritance and environment.

Dairy Husb. 464 (NC-2)

Ind. Measurements for Predicting Heritable Beef Cattle Characteristics. To determine (1) length of postweaning feeding period permitting greatest expression of genetic differences in gain rate; (2) heritability estimates of weaning type score, area of rib eye muscle, marbling score of rib eye muscle, and thickness of fat covering rib eye muscle; (3) genetic and phenotypic correlations among weaning weight, weaning type score, postweaning rate of gain, area of rib eye muscle, etc.; (4) which of two environments permitsbetter expression of genetic differences among weaning weights; and (5) which of two preweaning environments allows greater repeatability of weaning weight.

Anim. Husb. 1000 (NC-1) Coop. ARS

Iowa Improvement of Beef Cattle Through Breeding Methods. To establish inbred lines of Aberdeen Angus, Hereford, and Shorthorn cattle, develop methods of selection for improving other lines, and determine possible intensity of inbreeding.

Anim. Husb. and Dairy Husb. 1055 (NC-1) Coop. ARS

Iowa The Influence of Dietary Supplementation Selection and Breeding on Carcass Quality, and Tissue Composition of Meat Animals. To (1) determine effects of protein, fat, antibiotics, trace minerals, calcium and phosphorus of rations on carcass quality and tissue composition; (2) determine effect of roughage, protein and protein substitutes, and hormones on quality of lamb and beef carcasses; and (3) make additional studies, largely biochemical, to support objectives above.
Anim. Husb. and Dairy Husb. 1239

Iowa The Economics of Location in the Meat Packing Industry. To (1) examine geographical organization and structure of meat packing industry and analyze economic factors influencing present location of meat processing facilities; (2) determine effects of relations between freight rates on raw products and freight rates on finished products on existing patterns of location; and (3) construct models by which changing location of slaughter can be predicted, given geographical patterns of production and geographical patterns of consumption, and expected freight rate relationship.
Agr. Econ. and Rural Sociol. 1383 Coop. AMS

Kans. Improvement of Beef Cattle Through Breeding Methods. To (1) develop two lines of Shorthorns and maintain detailed records of their progressive development; (2) determine the practicability of inbreeding for establishing two lines of Shorthorns in a herd of 40 females of breeding age and the use of these in the improvement of beef cattle through breeding methods; (3) study inheritance of the economic characters in beef cattle production and the interrelationships of these production traits; and (4) evaluate selection criteria and develop procedures for improving performance of beef cattle.
Anim. Husb. 286 (NC-1)

Ky. The Effect of Oxytetracycline and Diethylstilbestrol Additions on Fattening Steers Being Fed an Economy Supplement. To (1) determine effect of adding oxytetracycline to low cost supplements containing urea and trace minerals; (2) determine effect of implanted and orally fed diethylstilbestrol ($C_{18}H_{20}O_2$) to fattening steers in drylot being fed low cost supplements; and (3) gain further experience with a low cost supplement by feeding it in a heavy corn ration.
Anim. Indus. 259

Ky. The Effect of Implanting Diethylstilbestrol, Progesterone and Estradiol Both With and Without Oxytetracycline on the Performance of Grazing Steers. To study effects of implanting (1) graded levels of diethylstilbestrol ($C_{18}H_{20}O_2$) and (2) a combination of 1000 mg. of progesterone ($C_{21}H_{30}O_2$) and 20 mg. of estradiol on the performance of yearling steers grazing bluegrass with and without addition of oxytetracycline in salt portion of ration.
Anim. Indus. 269

Ky. Processing Costs and Consumer Acceptance of Light Weight Hogs. To determine the cost of processing and consumer acceptance of pork from hogs weighing approximately 160 lbs.
Anim. Indus., Agr. Econ. 1011

La. Comparisons of Various Crossbred and High Grade Cattle Under Gulf Coast Conditions with Respect to Rate of Growth on Pasture, Fattening Ability, and Meat Quality of Steers. To (1) develop types of beef cattle suited to conditions along the Gulf Coast; (2) determine efficiency of various breeds and crosses for economical beef production under Louisiana conditions; and (3) accumulate data which, when interpreted, will be of use to livestock breeders.
Anim. Indus. 605 (S-10)

Md. A Study of the Productiveness of Purebred Beef Cattle in Maryland. To (1) study productiveness of beef cattle including rate and economy of gain, market type, carcass quality, fertility, longevity, etc.; (2) compare selection criteria with actual performance; (3) evaluate breeding techniques under varying conditions in purebred herds; and (4) attempt to produce beef cattle with superior productive capacities by line-breeding and selection.
Anim. Husb. C-14 (S-10)

Mich. The Effectiveness of Selection in Beef Cattle Improvement. To (1) establish measurements of most efficient beef cattle through study of rate of gain, efficiency of gain, breeding efficiency and carcass desirability; (2) develop and test methods of selection effective in accomplishing the above; (3) collect data on weaning weights, rate of gain, efficiency of gain and conformation to make possible a study of heritability of these characters; and (4) attempt to discover strains of cattle that excel in qualities listed under (1).
Anim. Husb. 96 (NC-1)

Miss. A Study of the Use of Diethylstilbestrol and Tranquilizer in Fattening Steers. To determine (1) value of diethylstilbestrol as a feed supplement for fattening cattle under Mississippi conditions; (2) value of a tranquilizer as a feed supplement; and (3) additive effect of a tranquilizer and stilbestrol.
Anim. Husb. HE-12

Miss. A Study of the Effect of Several Feeding and Management Practices on the Carcass Quality of Beef Steers Under Mississippi Conditions. To (1) compare feeding and management practices for production of slaughter cattle; (2) evaluate quality of carcasses produced from steers under different management systems; (3) evaluate consumer acceptance of carcasses produced under each system of feeding and management.
Anim. Husb. HE-23

Mont. Recurrent Selection and Record of Performance Selection in Open and Closed Beef Cattle Herds. To (1) establish inbred lines of registered Herefords, horned and polled, resulting in improving rate and economy of gain, fertility, nursing ability, longevity, and carcass quality; (2) establish an improved herd of registered Angus, select males on a high level of performance as indicated by standard record of performance procedures; (3) study feasibility of breeding for specific combining ability through recurrent selection; (4) study topcrossing merit of bulls from Bozeman experimental lines and herds in comparison with industry sponsored herds; and (5) study utility of body for a guide in assigning visual or otherwise determined score.
Anim. Indus. and Range Mgt. 104 (W-1) Coop. ARS

Nebr. Improvement of Beef Cattle Through the Application of Breeding Methods. To (1) establish and evaluate selection criteria for improving performance in beef cattle; (2) determine inheritance of productive and deleterious characters, and methods for controlling them; (3) evaluate usefulness of various mating systems such as inbreeding, outbreeding, crossbreeding, or phenotypic assortative mating; (4) develop breeding procedures for improving performance of beef cattle; (5) develop lines of cattle with improved breeding value for such characters as rate and economy of gain, fertility, nursing ability and carcass quality; and (6) evaluate usefulness of existing stocks of beef cattle and their adaptability in various areas under different systems of management.

Anim. Husb. 334 (NC-1) Coop.

N. Mex. Breeding Beef Cattle for Southern Ranges. To (1) determine genetic improvement in productive traits with different selection methods and breeding systems; (2) determine adaptability of introduced lines of cattle to southwestern ranges; (3) study modes of inheritance of specific genes; (4) obtain additional estimates of heritabilities, genetic and phenotypic correlations, maternal influence, and effect of inbreeding from data collected; and (5) develop selection criteria and breeding plans for more effective improvement of cattle.

Anim. Husb. 65 (W-1) Coop. ARS

N. C. The Improvement of Beef Cattle Through Breeding Methods. To develop and evaluate selection criteria for the improvement of productive efficiency and market quality of beef cattle.

Anim. Indus. S-74 (S-10) (Also see S-10,

Ohio Relationship Between Various Feeds or Nutrients and the Protein Requirements of Fattening Cattle. To (1) revaluate protein needs of fattening cattle; (2) determine effect of molasses, trace minerals, and other factors on utilization of protein and energy, and (3) relate objectives (1) and (2) to type and quality of roughage fed.

Anim. Sci. 30

Ohio The Influence of Sex Hormones Upon Growth Rate, Fattening, and Carcass Quality of Feeder Calves. To (1) compare growth rate, fattening, and carcass quality of steer and bull calves; (2) determine influence of diethylstilbestrol implants in steers and bulls upon performance in feed lot and upon quality of carcass; and (3) study excretion rate and carcass retention of stilbestrol after subcutaneous implantation.

Anim. Sci. 78-1 (NC-1)

Ohio Relationships Between Body Conformation, Rate of Gain and Carcass Value as Measured in a Breeding Herd of Hereford Cattle. To (1) study relationships between various body measurements, rate of gain, and carcass value in a herd of Herefords; (2) correlate gross carcass measurements with detailed slaughter and carcass cut-out data; (3) determine the heritability of cross-sectional area of longissimus dorsi muscle as measured in carcasses; (4) compare progeny of long bodied and of compact, deep bodied bulls as to their ability to make rapid, economical gains and produce carcasses containing a high percentage of primal cuts and edible portions; and (5) develop a line of fast gaining, superior lean-meat producing Herefords and evaluate methods used in development.

Anim. Sci. 113 (NC-1)

Okla. Effect of Various Concentrate-to-Roughage Ratios on the Feed-Lot Performance of Steers and Heifers. To (1) study effect of certain concentrate-to-roughage ratios for self-feeding fattening yearling steers and heifers to a rate of gain, b efficiency of feed utilization and economy of gain, c necessary time on feed to reach desired slaughter grade and d quality of carcass produced; and (2) compare performance of steers vs heifers within each level of concentrate to roughage.

Anim. Husb. 893

Okla. The Effect of Certain Hormones and Feed Additives on Fattening Beef Calves. To study (1) effect of previous stilbestrol implantation as calves on the subsequent feed-lot performance of fattening steers; (2) effect of certain thyroid-inhibitory drugs on response to stilbestrol, with particular reference to carcass grade; (3) value of simple vs. complex protein supplements for fattening beef calves where stilbestrol is used to stimulate gains; and (4) protein needs of beef calves as they may be affected by addition of stilbestrol to the ration.

Anim. Husb., Chem. 949

Okla. Effects of Phosphorus and Other Minerals in Fattening Steer Rations. To (1) study effect of increased levels of P in fattening steer rations on appetite, weight gains, efficiency of feed conversion and carcass merit; (2) determine P needs of fattening yearlings given stilbestrol; and (3) study effect of varying Ca:) ratios, and interrelation between certain minerals, in fattening rations.

Anim. Husb., Chem. 996

Oreg. Improvement of Beef Cattle Through Breeding Methods, Using Basic Physiological Differences in Rate and Efficiency of Gains. To (1) develop a selection index based on suckling rate of gain, gains during feed test, feed efficiency and score conformation, and determine heritabilities, genetic and phenotypic correlations and economic values for constructing index; (2) determine growth pattern of calves differing in genetic growth potential and develop a mathematical equation that best describes each one, and one best describing growth pattern of two groups; (3) determine nitrogenous and carbonaceous blood and urine constituents of calves at definite weights and relate this to rate and efficiency of gains; (4) determine heritability of suckling ability of cows, growth rate of calves, feed efficiency, scores, blood and urine constituents, etc.; (5) relate score and body measurements to rate of gain, feed efficiency, and body composition as determined in live animal and in carcass; (6) determine if animals can be selected effectively for rate and efficiency of gains on a roughage ration or if feeding of more concentrates is needed; (7) develop beef lines through rigid selection and inbreeding and test value for improving production in top crossing; and (8) determine digestion coefficient at definite body weights and relate ability to gains.

Dairy and Anim. Husb. 1 (W-1) Coop. ARS

S. C. The Use of Purebred and Crossbred Cows in the Production of Slaughter Calves. To determine birth and weanling weights, market grades, carcass grades and dressing percentages of fat calves sired by a Shorthorn bull and Purebred Angus cows and crossbred cows from Brahman X Hereford, Brahman X Angus, and Hereford X Angus.

Anim. Husb. 25 (S-10)

S. C. *Methods of Management of Slaughter Cattle*. To determine (1) most practical systems of producing slaughter cattle; and (2) desirability of carcasses produced by these systems.
Anim. Husb. 132

S. C. *Consumer Preference for Beef as Influenced by Type of Fattening Ration*. To determine quality and compare consumer and trade preference for beef from steers full fed a grain ration while on Coastal Bermuda pasture with beef from steers full fed on a similar grain ration in dry lot.
Agr. Econ. and Rural Sociol., Anim. Husb., Home Econ. 448

S. Dak. *Protein and Energy Requirements of Beef Cattle*. To determine (1) protein and energy needs and interrelation of beef cattle at various levels of production; and (2) effect of various protein and energy intakes on subsequent performances by beef cattle and effect on carcass quality and composition.
Anim. Husb., Biochem. 325

Tenn. *Type and Breed as Factors Influencing Beef Carcass characteristics and Consumer Acceptance*. To relate carcass characteristics of beef and dairy animals varying greatly in conformation to consumer preferences and acceptance; compare values of retail cuts from experimental animals as evaluated at retail level with characteristics of carcasses from which they came as evaluated at wholesale level; use information from above to improve standards for evaluating carcasses at wholesale level and for evaluating conformation in beef breeding stock. To determine necessary inputs per pound of edible meat produced by animals varying greatly in conformation. This will be in nature of by-product information and will be available since animals will be raised under controls to insure that differences observed will be those resulting from differences in conformation and not previous treatment.
Anim. Husb., Agr. Econ. and Rural Sociol. 12 Coop. ARS

Tenn. *The Improvement of the Producing Ability of Beef Cattle*. To (1) develop lines, crosses or combinations of beef cattle that will make most efficient use of Tennessee pastures and forages and result in an improvement of rate and economy of gain, carcass quality, fertility and longevity; (2) develop effective breeding techniques for improving productiveness of existing lines; (3) investigate productiveness of existing lines; and (4) test effect of different levels of nutrition on development of type, conformation, fertility and longevity.
Anim. Husb. 61 (S-10) Coop. ARS

Tenn. Carcass Value Investigations With Beef. To ascertain possibility of developing methods for objectively evaluating quality factors in beef, and determine effect of consumer acceptance as basis for improvement in methods of beef production and marketing.
Anim. Husb., Agr. Econ. and Rural Sociol. 68

Tex. The Improvement of Production and Adaptation of Beef Cattle Within Pure Breeds and Certain of Their Crosses Through Breeding Methods. To (1) improve rate of gain by selection based on weaning weight and gain in feed lot; (2) improve gain in Brahman by crossing with Hereford and continue backcrossing to Brahman; (3) evaluate cattle with regard to adaptability to environment, especially in summer; (4) improve production in summer by selection based on individual summer gain; (5) determine extent of carcass differences within breeds and heritability of differences; (6) evaluate new crosses and breeds with respect to carcass merit; (7) determine value of carcasses of culled bulls; (8) evaluate significance of hybrid vigor in hybrids and their offspring in regard to gaining, carcass value, fertility, etc.; and (9) make available breeding animals of proven superiority.
Anim. Husb. 650 (S-10) Coop. ARS

Utah The Development of Breeding Techniques and Selection Criteria for Improvement of Economically Important Characteristics in Hereford and Shorthorn Cattle. To develop (1) three lines among Hereford and Shorthorns useful in improving rate of gain, efficiency of gain, carcass quality, fertility, and milking ability; (2) selection criteria and selection and breeding techniques effective in derivation of productive lines of beef cattle; (3) more accurate, simple methods of evaluating rate and efficiency of gains; and (4) certain biochemical techniques and determine their value for identifying genotypes in beef cattle.
Anim. Husb. 280 (W-1) Coop. ARS

Va. Heterosis From Crosses Among British Breeds of Beef Cattle. To measure heterosis obtained from crosses among Angus, Hereford, and Shorthorn beef cattle as shown by growth rate, fattening ability and carcass quality up to approximately 20 months of age; and production ability of dams.
Anim. Husb. 93901 (S-10) Coop. ARS

Wash. Improvement of Beef Cattle by Selection and Mild Inbreeding Within Lines of the Hereford, Angus and Shorthorn Breeds. To develop (1) lines of established beef cattle breeds useful in improving rate of gain, economy of gain, carcass composition, fertility, longevity, and type; (2) selection criteria and selection and breeding techniques effective in derivation of productive lines; and (3) method of identifying economic characteristics in young stock.

Anim. Sci. 788 (W-1)

Wash. The Effects of Animal Fat, Antibiotics and Stilbestrol Administered to Fattening Steers Consuming Good and Poor Quality Roughage. To determine (1) the influence of high levels of animal fats in ruminants' rations on (a) digestibility and efficiency of utilization of the fat and associated dietary constituents, (b) vitamin A stores in the liver, (c) characteristics of the deposited fat, (d) the retention of yellow pigments in the depot fat, and (e) total blood lipids; (2) the influence of dietary stilbestrol and/or aureomycin on feed efficiency, digestibility of high and low fat and good and poor quality roughage diets; (3) the influence of high levels of dietary fat on utilization of pasture; (4) the influence of site of introduction of fat and aureomycin deposition on digestibility of feed nutrients; and (5) the effects of animal fat, aureomycin and stilbestrol on carcass characteristics.

Anim. Sci. 1217

Wis. Market Value and Nutritional Quality of the Meat From Livestock Receiving Stilbestrol. To determine effect of (1) diethylstilbestrol added to various rations on carcass quality, weight gains and feed efficiency of beef cattle; (2) stilbestrol on nutritive value of carcass; and (3) ingested stilbestrol on concentrations and distribution of fat, protein, water, vitamins, and estrogenic activity in bodies of beef cattle.

Anim. Husb., Biochem. 967

Wyo. Criteria for Improving Effectiveness of Selection in Beef Cattle. To (1) determine relation of body form development as determined by body scores and measurements to production factors; (2) develop selection criteria from carcass evaluation techniques and in vivo determination of lean-fat ratio; (3) determine effectiveness of different selection and breeding systems on genetic improvement of productive traits; (4) further study and determine heritability estimates and genetic and phynotypic correlations of production traits from data collected.
Anim. Prod., Vet. Sci. and Bact. 655 (W-1)

b. Sheep

Ala. Selection and Management of Sheep for Early Lamb Production in Alabama. To (1) compare various existing breeds and strains of sheep for spring lamb production in State; (2) develop strains or lines of sheep specifically adapted to early lamb production by selection for early lambing and prolificacy of the ewe, birth weight, weaning weight, and grade of the lamb, and weight and market desirability of wool from breeding flock; (3) study seasonal variation in semen quality and in age of puberty and date of termination of anestrus of ewes within various strains or lines; and (4) study relation of nutrition and management of pregnant ewe to birth weight, percentage survival, and weaning weights of lambs.
Anim. Husb. and Nutr. 109 (S-29) Coop. ARS

Calif. The Effect of Nutrient Restriction on Growth and Body Composition of Sheep and Cattle. To (1) adopt routine use of antipyrine for learning body composition as a criteria in evaluation of stresses resulting from nutrient restrictions; (2) determine effect of different degrees of total, energy, and protein starvation on over-all efficiency of production from sheep and cattle; and (3) develop methods of assessing feasible degree and length of nutrient restriction which is commensurate with economical production of range cattle and sheep.
Anim. Husb. 1722 (W-46)

Ill. Carcass Quality of Lambs as Affected by Different Feeds and Feeding Practices. To study effect on carcass quality of lambs of physical form and chemical composition of fattening rations.
Anim. Sci. 20-331

Kans. The Effects of Implanting Stilbestrol in Feeder Lambs and Feeding a Stilbestrol Premix to Feeder Lambs Upon the Quality and Palatability of the Carcass. To obtain information regarding body changes when stilbestrol is implanted in or fed to feeder lambs.
Anim. Husb., Chem., Home Econ. 423

Mont. Improvement of Mutton Type and Wool Characteristics of Rambouillets Through Selection and Breeding. To conduct a breeding program with Rambouillet sheep to improve their body conformation and lamb production and increase quality and quantity of clean wool.
Anim. Indus. and Range Mgt. 80

Ohio Types of Sheep and Systems of Breeding for Market Lamb Production. To (1) determine productive value, range of adaptation, and breeding service use of F_1-Columbia x Merino ewes as a new eastern type of commercial ewe for grass-fat lamb production; (2) determine same for 3-breed-cross-progeny from above ewes as commercial ewes; and (3) study possibility of three-breed rotation crossing and ascertain advantages and disadvantages of such a system of breeding in commercial sheep production.
Anim. Sci. 8

S. Dak. The Effect of Hormones on Feed-Lot Performance and Carcass Quality of Growing and Fattening Lambs. To (1) determine rate of gain and feed efficiency made by lambs treated with hormones; (2) study effect of hormones on carcass quality; and (3) study effect of hormones on urogenital systems and on body development.
Anim. Husb. 298

Tenn. Evaluation of the Adaptability of Existing Breeds and Commercial Types of Sheep for the Production of Early Milk Fat Lambs. To study (1) adaptability of existing breeds and commercial types of sheep for early fat lamb production under existing environmental conditions as measured by early lambing, prolificacy of ewe, milking ability, ram fertility, growth rate and carcass quality of lambs; (2) reproductive behavior with respect to start of estrus, regularity of cycles, repeatability of early cycling and, repeatability of early lambing; and (3) effect of exogenous hormones on reproductive behavior.
Anim. Husb. 70 (S-29)

Tex. Improvement of Sheep Through the Selection of Performance-Tested and Progeny-Tested Breeding Animals. To (1) obtain production records on young rams from different flocks and parts of State under uniform conditions for use in stud selection; (2) locate superior studs most prepotent for economically important characters; (3) study characteristics as to inheritance, relationship to each other and their relationship to productivity and value in commercial flocks; (4) compare breeding performance of tested to untested rams selected in usual manner when used on commercial flocks and compare progress to be made through use of two procedures; (5) compare range testing with feed-lot testing as measure of breeding value; and (6) develop and outline selection programs and procedures to bring about more rapid improvement in population.
Anim. Husb. 687

c. Swine

Ala. Methods of Developing Improved Strains of Swine for the Southeast by Breeding. To study effectiveness of a selection program based on cross-performance in developing improved strains of swine.
Anim. Husb. and Nutr. 529

Fla. Feeding Waste Beef Tallow to Peanut-Fed Swine to Harden Their Fat. To determine effectiveness of waste beef tallow in hardening fats of peanut-fed swine.
Anim. Husb. and Nutr. 739

Ga. The Influence of Variations in Dietary Regimen and Method of Feeding on Gains and Carcass Value of Growing Swine. To determine effect of (1) variations in feber level of rations fed during various segments of pig's development on performance and carcass value; (2) various hormones on performance and carcass value in market hogs; and (3) limited vs. full-feeding on performance and carcass value.
Anim. Indus. 345

Idaho Effect of Some Dietary Supplements on Cost and Yield of Edible Portion of Pork, and on the Frozen Storage Life of Pork. To study from consumer standpoint the effect of feeding alpha-tocopherol and an antibiotic alone and in combination on (1) cost of production and yield of edible portion of pork, including ratio of fat to lean; and (2) development of rancidity in frozen pork.
Home Econ. Res. 271

Ind. The Identification of Superior Strains of Meat-Type Swine. To (1) identify lines of swine that are outstanding in performance and produce superior meat carcasses; (2) investigate correlations between growth, feed efficiency and carcass merit of swine, and relate differences in these characteristics with physiological differences between lines; and (3) evaluate various methods of selection for superior meat type.
Anim. Husb. 740

Ind. The Improvement of Swine Through the Application of Breeding Methods. To (1) continue investigating methods of improving fertility, rate and economy of gain, and carcass merit of inbred lines; (2) establish lines of Durocs by different criteria and and methods of selection from a single foundation; (3) test value of inbred lines in various crosses for improvement in production and carcass merit; and (4) continue study of physiological characteristics useful in determining performance value of lines.
Anim. Husb. 941 Coop. ARS

Ind. The Effects of Antibiotics and Other Feed Additives on the Gain, Feed Efficiency and Carcass Quality of Swine. To determine (1) effect of several antibiotics and other feed additives on rate of gain, feed efficiency, and carcass quality of growing-finishing swine; and (2) level of these compounds necessary for optimum growth response.
Anim. Husb. 943

Iowa Improvement of Swine Through Breeding. To study (1) response of swine to selection for certain traits and develop methods of obtaining maximum response; (2) effects of inbreeding and crossbreeding in commercial hog production; and (3) relationships between meatiness and growth rate, feed requirements, etc.
Anim. Husb. and Dairy Husb. 1127 Coop. ARS

La. Improvement of the Carcass Qualities of a Herd of Duroc Swine by the Development of Inbred Lines. To test the method of improving the carcass qualities of a herd of Duroc swine by development of inbred lines - the better lines to be combined at a suitable time.
Anim. Indus. 812

Mich. Biological and Biochemical Functions of Certain Nutritional Factors in Swine Feeding. To determine effect of (1) various mineral imbalances on swine parakeratosis with particular reference to role of Ca and Zn in etiology of disease as well as effects of these substances on growth and feed efficiency; (2) increasing growth rate and improving feed efficiency through addition of various chemicals as antibiotics, sulfonamides, and other organic compounds; (3) certain feeding methods on growth and feed utilization; and (4) nutrition and management on carcass quality.
Anim. Husb., Agr. Chem. 44

Minn. A Study of the Interaction of Genetics and Environment in Swine. To (1) study interaction of different levels of feeding and rate of gain on economy of production and quality of carcass in different Minnesota No. 1, No. 2, and No. 3 cross-bred combinations; (2) introduce sublines of the above into this study; (3) study different genetic groups in respective responses to varied hormone treatments; and (4) determine more of the interaction of genetics and environment in swine.

Anim. Husb. 1420

Mo. Breeding Principles for Swine Improvement. To (1) study effectiveness of mass selection for thinner backfat in swine; (2) gain further information on possible existence of genetic correlations between economic traits in swine; (3) determine if environmental x genetic interactions on performance traits are important; (4) determine if certain physiological changes occur when selection is practiced by thinness of backfat.

Anim. Husb. 3 Coop. ARS

Nev. Factors Affecting the Utilization of High Levels of Alfalfa by Swine. To (1) determine material(s) in alfalfa retarding growth of swine; (2) develop methods to overcome effects of growth inhibitor(s); and (3) determine limiting factor(s) in alfalfa for reproduction.

Anim. Husb. 42

Ohio Measurement of, and Ways of Affecting Sex-Influenced Performance of Growing-Finishing Swine. To (1) determine time and rate of development of differences in carcass characteristics noted in barrows and gilts at market weight; and (2) study influence of feeding low levels of hormones or substances with hormonal activity on sex-influenced-growth pattern of growing-finishing swine.

Anim. Sci. 187 Coop. ARS

Okla. The Development and Testing of Inbred Lines and Selection for Specific Combining Ability in Swine. To (1) determine feasibility of selecting lines for specific combining ability in a reciprocal recurrent selection program; (2) test single crosses of lines with other lines to identify desirable multiple lines cross combinations for commercial use; (3) develop improved methods of selecting breeding stock for traits of economic importance; and (4) sample existing breeds of hogs more extensively for genetic material to be used in developing lines.

Anim. Husb. 808 Coop. ARS

Pa. The Feeding of Hormone and Hormone-Like Materials to Swine. To study effect of feeding graded levels of diethylstilbestrol or methyl testosterone to pigs during growing and fattening period on: rate of gain and efficiency of feed utilization; certain standard carcass measurements at market weights; subsequent reproductive performance of gilts and boars.

Anim. Husb., Agr. and Biol. Chem., Vet. Sci. 882-B

S. C. Relations of Certain Animal and Carcass Characteristics to Yield of Lean Cuts in Swine. To determine rate and efficiency of gains of selected pigs from production registry litters produced by State swine breeders. Ascertain relation of animal and carcass characteristics to yield of lean cuts in swine. Assist breeders in producing certified meat type litters from production registry litters.

Anim. Husb. 131

S. C. The Effect of Fattening Rations on Carcass Characteristics of Swine. To determine (1) relative feeding value of various farm grains; (2) effect of these rations on the carcass produced; (3) value of winter forage in ration of fattening swine and its effect on carcass desirability.

Anim. Husb. 340

Tenn. Improvement of the Producing Ability of Swine Through Performance Testing and Breeding Methods. To (1) study various methods of breeding and selection for the improvement of performance of swine in litter size, viability, growth rate, efficiency of gain, and carcass desirability; (2) evaluate productive performance of established and new breeds of swine and of lines within breeds for traits of economic importance; (3) study crossing performance of established and new breeds of swine and of lines within breeds in various crossbreeding and line-crossing systems.

Anim. Husb. 73

Tex. Swine Breeding Improvement Based on Performance. To (1) develop and standardize procedures and techniques for testing production performance of economically important characteristics in breeding and market hogs; (2) identify and develop superior lines of breeding stock as to prolificacy, weaning weight of litter, rate and economy of gain, net carcass merit, and longevity of breeding stock; and (3) determine estimates of heritability for and genetic correlations between traits in (2).

Anim. Husb., Home Econ. 956

Utah Carcass Characteristics and Feed-Lot Performance of Three Strains of Swine Fed Various Levels of Alfalfa Meal and Barley. To study (1) influence upon carcass and on rate and efficiency of gains that results when level of alfalfa meal is varied from a low of 10% to a high of 50% with accompanying changes in barley levels; (2) interrelationship of breeding, represented by Durocs, Yorkshires, and a strain developed from a cross of the two breeds, and feeding, as associated with rations containing various levels of alfalfa and barley, upon carcass characteristics.
Anim. Husb. 461

Wash. Development of a Bacon Type Hog Adapted to the Feed and Climatic Conditions of the State of Washington. To develop strains of swine which are adapted to the feed and climatic conditions of Washington and which will produce carcasses containing the maximum amount of lean meat and the minimum amount of fat consistent with firmness of flesh.
Anim. Sci. 671

2. Ante- and Post-Mortem Handling

Ark. Effect of Preslaughter Handling and Treatment on Carcass Quality and Market Value. To study methods for improving value of meat produced through management of stock during preslaughter period and after completion of farm feeding period.
Anim. Indus. and Vet. Sci., Agr. Econ. and Rur. Sociol. 446

Calif. Marketability of Beef as Affected by Age, Breed, and Environmental Stress (Drought) Prior to Fattening. To determine to what extent the quality of meat within a given Federal grade is influenced by breed, age, or environmental stress of animals prior to fattening in order to provide basic data for more precise grading.
Anim. Husb. ES-534

Ga. Carcass and Meat Characteristics as Influenced by Breeding, Feeding and Management Treatments in Cattle, Sheep and Swine. To (1) obtain data on carcasses fattened on grass, dry lot, or combinations of these under local conditions; (2) study relationship of breeding, feeding, and management treatments on carcass and meat characteristics; (3) use above data in developing procedures for producing meat for consumer preferred type animals.
Anim. Indus. 113

Kans. The Effect of Level of Dietary Iron Upon Carcass Quality of Pork, Beef, and Lamb. To study effects of dietary Fe and/or Cu (1) in beef cattle, sheep, and swine rations on growth, carcass characteristics (color of lean, texture and firmness), and palatability factors (tenderness, juiciness, and flavor): (2) and on myoglobin content of longissimus dorsi, semimembranosus, semitendinosus, and biceps muscles, also Cu and Fe content of hemopoietic organs; and (3) on quality and palatability factors of cured meats.
Anim. Husb., Chem., Home Econ. 524

Mo. Effect of Ante-Mortem Handling During Marketing on Subsequent Carcass Quality of Beef. To study influence of exercise, rest, feeding and other factors which may produce shock in the live animal and a loss in quality in the resultant beef carcass.
Anim. Husb. 238

N. Y.
(Cornell) Means of Improving the Meat Quality of Slaughter Dairy Cows. To determine effects of estrogen treatments on slaughter dairy cows of advanced age during a 6-8 week feeding period.
Anim. Husb. 67

3. Evaluation

Colo. The Use of the Somascope and/or Other Physical or Chemical Means for Improving the Accuracy of Determining Market Grades in Live Slaughter Cattle. To (1) determine depth and distribution of fat on live slaughter cattle and if any relationships exist between finish of same and their carcass grade and/or qualities of meat when cooked; (2) establish objective grade specifications based on finish and other characteristics for use with somascope and other chemical means of grading and test to see if these are feasible and economically efficient means; (3) investigate specific gravity as a procedure for measuring marbling of selected muscles and relationship of marbling with carcass grade and quality of cooked beef.
Anim. Indus. 27

Ill. Factors Affecting Quality of Beef Carcasses. To study validity of measures of quality as currently used by beef trade, develop precise objective measures of factors which contribute to beef quality, relate factors which contribute to carcass quality to those which can be measured easily in live animals.
Anim. Sci., Agr. Econ. 20-371

Ky. Factors Affecting Carcass Characteristics of Beef Cattle. To evaluate factors affecting carcass characteristics of beef as produced in State: creep feeding of beef produced by Kentucky Cow and Calf plan; effects of breed of dam (Red Poll and Hereford) when bred to same Hereford bull, on quality of beef; effect of different pasture forages on eating quality of beef.
Anim. Indus. 267

Ky. Carcass Evaluation of Lambs From Selected Crosses. To (1) evaluate lamb carcasses from progeny of performance tested rams; and (2) adapt objective methods to the measurement of muscling and fatness in lamb carcasses.
Anim. Indus. 268

Minn. Factors Affecting Market Quality of Beef Cattle Carcasses. To (1) determine effects of stilbestrol on beef carcass quality; (2) determine market value of carcasses from cattle having been fed stilbestrol; (3) relate characteristics concerning market quality of beef carcasses to such production factors as growth rate, rations, and feed use; (4) compare moisture and fat content samples from carcasses; and (5) determine cooler shrinkage on the carcasses.
Anim. Husb. 1413

Mo. Development of Improved Methods of Pork Carcass Evaluation. To develop improved methods of pork carcass evaluation.
Anim. Husb. 88

Nebr. Beef Carcass Evaluation. To determine (1) factors contributing to carcass desirability and their relative importance; (2) relation between economically important carcass traits and measurable differences in live animal characteristics; and (3) factors that contribute to consumer selection of different retail cuts.
Anim. Husb., Agr. Econ. 541 Coop. ARS

N. C. Techniques for the Objective Evaluation of Beef Carcasses and Cuts. To (1) develop techniques applicable for use in appraising beef carcasses and cuts; (2) appraise some of present objective methods used in meat quality evaluation; and (3) correlate objective methods of appraisal in terms of their agreement with evaluation panel scores.
Anim. Indus. HM-28 (SM-19)

N. C. A Study of the Factors Influencing Quality in Pork. To (1) characterize pork quality by use of objective techniques; and (2) determine relationships between objective quality measurements and palatability.
Anim. Indus. HM-29

N. Dak. The Extent, Nature and Causes of Variation in Carcass Value of Cattle. To (1) develop measures for carcass evaluation for learning difference in consumptive value and quality; (2) determine extent and source of variation in percent of lean, fat, and bone and quality determinations in carcasses; (3) determine correlation of percent of lean to size of various muscles and bones which might be measured; (4) study relation of glandular size to carcass characteristics; (5) study efficiency of various methods of estimating outside cover of fat; (6) compare live vs. carcass grades and cut-out values of carcass of different grades under different price-quality relations; and (7) learn repeatability of variations in carcass characteristics of genetically related steers.
Anim. Indus. 7-10

Okla. Development of Objective Criterion for Beef Evaluation. To develop (1) objective criteria for evaluation of beef; and (2) tools for use in objective evaluation of beef.
Anim. Husb. 998 (SM-19)

Oreg. Development of a Method of Defining the Quality of Retail Cuts of Fresh Beef. To develop a method by which qualities of fresh beef cuts can be better defined.
Food and Dairy Technol. 413 (WM-33)

B. Meat Quality

1. Physical and Chemical Properties

Calif. The Catalysis and Inhibition of Fat Oxidation at Low Temperature. To (1) measure rate of catalysis of unsaturated fat oxidation at low temperatures by home compounds like hemin, hemoglobin, and cytochromes and by enzymes; (2) determine relative effect of various antioxidant inhibitors; and (3) from the investigations, formulate mechanisms of catalysis and inhibition.
Food Technol. 1506

Calif. Tenderness of Beef-I. Changes Due to Treatment During Cold Storage. To study (1) tenderness of beef after varying lengths of cold storage; (2) alternation in pattern of tenderness changes due to removal of muscles from carcass immediately after slaughter; and (3) role of enzymatic activity in altering tenderness of beef.
Home Econ. 1668

Calif. Improvement of Tenderness, Juiciness, Color, Flavor and Odor of Beef and Lamb by Addition of Biochemicals. To (1) improve physical objective methods used in evaluating tenderness and color; (2) from existing knowledge, select suitable biochemicals and design appropriate mixtures for injection of meats or perfusion of the whole meat animals; (3) test biochemicals and mixtures on individual muscles or cuts and on whole animals; (4) use these biochemicals and mixtures, etc., in developing commercial methods useful in improving tenderness, etc.; and (5) from results of (2) and (3), determine fundamental implications of obtained results.
Food Technol. 1832 (WM-33)

Iowa Beef Skeletal Muscle Connective Tissue in Relation to Tenderness in Meat. To investigate fundamental causes of the toughness or tenderness of meats and evaluate connective tissue of beef skeletal muscles as they relate to these problems.
Anim. Husb. and Dairy Husb., Home Econ. 1313

Kans. Enzymatic Separation Applied to the Determination of Collagen in Meat. To determine effectiveness of certain proteolytic enzyme preparations in releasing collagen from combination, association, or entanglement with contiguous muscle protein structures.
Home Econ., Chem. 419

Ky. A Study of the Keeping Quality and Shrinkage of Cured Pork from Hogs of Different Degrees of Fatness. To (1) study relative cutout values of pork carcasses from hogs of different degrees of fatness; and (2) determine shrinkage, keeping ability, and rancidity development of cuts from such carcasses.
Anim. Indus. 256

Ky. Microbiological Techniques in the Determination of Rancidity in Pork Fat. To (1) isolate organisms sensitive to components of rancid fat; (2) develop a more rapid, accurate method for assaying rendered pork fat for rancidity; and (3) determine components of rancid fat acting as inhibitors of spore germination.
Anim. Indus. 265

Mo. Stability in Cured Meats Using Ascorbic Acid and Other Stabilizers. To determine (1) if ascorbic acid, singly or in combination gives enough improvement in curing time or other advantages to justify cost of its use; and (2) some idea of optimum levels of ascorbic acid required.

Anim. Husb. 100

Mo. The Tenderness of Meat as Related to Tissue Components, Genetic Factors and Ante-Mortem and Post-Mortem Treatment. To (1) determine tissue components responsible for variations in meat tenderness; (2) determine influence of genetic factors, stress and post-mortem environment on muscle composition and tenderness; and (3) develop methodologies to evaluate effects of breeding, management, processing, and cooking on meat tenderness.

Anim. Husb. 327

N. C. Determination of Objective Measurements of Flavor of Aged Country Hams. To evaluate units of measurements developed in prediction equation used in expressing aged ham flavor.

Anim. Indus. HM-9

Pa. Physical and Chemical Properties of Fats and Fat Acid Derivatives in Relation to Their Composition, Structure, and Utilization. To (1) develop and improve techniques for analysis of fats; (2) obtain more complete knowledge of structure and composition of various glycerides comprising each of more common fats; (3) improve usefulness of fats by adding substances or removing others; (4) obtain more complete knowledge of physical and chemical characteristics of various fat acid derivatives; and (5) study fat deterioration and factors influencing such spoilage.

Agr. and Biol. Chem. 1188

Utah Chemical Techniques for Detecting Flavor Changes During Meat Processing. To (1) develop chemical techniques for rapid and reliable evaluation of flavor of processed meat; and (2) correlate chemical techniques for evaluating flavor of same with organoleptic test on man.

Foods and Nutr., Chem. 458

Wash. Identification of the Components of Flavor in Lamb and Mutton and Application of this Information Toward Increased Utilization of These Meats. To (1) investigate components of flavor of fresh and cooked lamb and mutton and their intensity by use of chemical, physical, and sensory techniques of identification; (2) determine effects of method of cookery on their flavors; and (3) study effects of breeding and management on the quality of lamb and mutton.

Home Econ. 1375

W. Va. Prevention of Rancidity in Carcass Fats of Turkeys and Hogs. To (1) study methods to delay development of rancidity in carcass fats of turkeys and hogs; (2) develop and evaluate methods to predict how long carcass fats will keep without becoming rancid under normal storage conditions; and (3) obtain data on movement of vitamin E and other antioxidants from circulatory system to depot fats of living birds and animals.

Agr. Biochem. 6

Wyo. The Biochemical Changes Affecting Quality in Stored Packaged Meats. To (1) determine influence of constant and fluctuating storage temperatures on quality of beef and lamb; (2) determine chemical and biochemical changes causing deterioration of quality of beef and lamb during storage; and (3) apply information from above to develop new preservation methods.

Agr. Res. Chem., Anim. Prod., Home Econ., Vet. Sci. and Bact. 667

2. Microbiology

Iowa Changes Occurring in Self-Service Meats Stored at Low Temperatures. To (1) investigate influence of microorganisms in accelerating discoloration phenomena associated with fresh and cured meats stored under conditions simulating those found in retail markets; (2) investigate possibility that enzymes are involved in the development of the undesirable colors associated with "greening" of meats; (3) evaluate predominant organoleptic changes which attend storage of meat at certain temperatures above and below the freezing point and to investigate the relationships that may exist between changes in color and/or microbiological populations and flavor; (4) investigate methods of packaging and/or incorporating additives (antioxidants, curing agents, antibiotics) which result in preservation of original quality of fresh and cured meats stored at certain temperatures above and below the freezing point; and (5) investigate the effect of wave length and intensity of light upon the microbiological, chemical, and organoleptic quality of fresh and cured packaged meats.

Dairy and Food Indus., Anim. Husb. and Dairy Husb., Home Econ. 1264

Kans. The Microbial Flora of Pork and Veal Products Retailed in Self-Service Markets. To obtain data on microbial populations of prepackaged meats as a basis for evaluating quality and sanitary procedures in current meat handling practice.
Bact. 541

Mo. Control of Microbial Development During Meat Processing. To control microbial development during meat processing by use of ultra violet radiation.
Anim. Husb. 257

Mo. Time and Temperature Tolerances (Product Climatology) of Meats and Meat Products From Processing Through Distributive Channels to Consumer and Their Relationship to Preferences and Acceptability of the Consumers. To (1) develop required information for predicting storage or distribution life of meat and meat products as influenced by: initial composition and nature, initial and subsequent microbial inoculation, processing treatments, other environmental influences encountered in distribution and handling of these products; (2) develop objective and subjective methods leading to predictive standards for storage and distribution life of these products; and (3) determine influence of variables in (1) as to their acceptability.
Agr. Econ., Anim. Husb., Home Econ. ES-520

N. Y. (Cornell) The Effect on Bacterial Counts of Holding, Refrigerating and Freezing Cooked Foods Prepared in Quantity. To study cooling rates and carry out bacterial analysis of and counts on cooked foods prepared in quantity held at room temperature and then stored under refrigeration or in the freezer, with a view to offering recommendations for the holding and storage of large quantities of foods prepared for institution food service.
Dairy Indus., Inst. Mgt. 115

3. Nutritive Value

Hawaii A Study of the Nutritive Value of Foodstuffs in Hawaii by Means of Chemical Analyses, Microbiological Assays and Biological Experiments. To (1) assemble data on the chemical composition and nutritive values of foods used locally in order that such data may be used in evaluating the diets of various groups or individuals in Hawaii and permit comparisons with foods used and/or analyzed elsewhere; (2) furnish data as needed on local foods used for poultry and other farm animals; and (3) make other occasional food analyses as requested.
Home Econ. and Nutr. 501

Tex. Characterization of Eating Quality of the Meat From Individual Animals. To characterize (1) eating quality of meat from individual animals of known history by using more than one cut and more than one method of cooking; and (2) eating quality of cooked and raw meat from individual animals by associating eating quality with variations in collagen content, amino acid end-groups, and histological structure.
Home Econ., Biochem. and Nutr. 941

Wash. Factors Influencing the Desirability and Nutrient Content of Meat and Meat Animals for Human Consumption. To determine effects of (1) genetics, nutrition, and other factors on carcass quality of meat animals and on quality and nutrient content of meat; and (2) storage, processing, and preservation on quality, nutrient content, physical structure, and economic value of meat and meat products.
Anim. Sci. 1161

C. Processing and Utilization

1. Aging, Curing, and Smoking

Ark. Factors Affecting the Preservation of Cured Pork. To compare various methods of preservation of pork by the cures now available and determine the effects of such factors as elapse of time from slaughter until carcass is chilled, various methods of making carcass cuts, and relative humidity upon preservation of pork cuts in order to determine best methods of curing and handling cured pork.
Anim. Indus. and Vet. Sci. 336

Ga. Curing and Smoking Pork and Turkeys. To determine (1) best procedure for curing and smoking pork and mature turkeys in freezer lockers and on farm; (2) best method of handling same before and after curing and smoking; and (3) consumer preference for pork and turkeys cured and smoked.
Food Proc. 76

Ky. The Effect of Smoking and of Smoking at Different Temperatures on the Shrinkage, Rancidity, and Palatability of Dry-Cured Hams. To compare effect of smoking, and of smoking at different temperatures, on shrinkage, rancidity, and palatability of dry-cured hams that will be aged under constantly controlled temperature and humidity.
Anim. Indus., Agr. Econ. 1008

N. C. Microbiological and Chemical Changes Occurring in the Curing of Meat. To ascertain the role played by microorganisms and to follow certain changes occurring in the curing of meat.
Anim. Indus. H-15 Coop. ARS

Ohio Studies in the Processing of Fresh Meat -- Biochemical and Bacteriological Studies Fundamental to the Processing of Fresh Meat. To find methods of processing fresh meat which will upgrade the less desirable carcasses; permit greater quality control along the lines of palatableness; diminish the great variation in consumer acceptability resulting from breeding, nutrition, and handling; augment effectiveness of refrigeration in preserving meat; and prevent certain spoilage such as "bone sour".
Anim. Sci. 70

Tenn. Ripening of Beef from Cattle Produced under Different Feeding Methods as Related to Palatability, Tenderness and B-Vitamin Content. Study flavor, tenderness, and vitamin B-complex content of beef from cattle finished mostly on grass, and effects of various degrees of ripening on flavor, tenderness, and vitamin B-complex content of beef. Learn if there is an optimum degree of ripening for given grade of beef which will make best quality meat, considering flavor, tenderness and vitamin B-complex content. Measure cooking effect on B-complex.
Home Econ., Anim. Husb., Vet. Sci. 67

2. Freezing, Canning, and Irradiating

Ga. Improving Present Practices of Freezing Fruits, Vegetables and Meats. To study (1) varieties of fruits, vegetables, and meats suited for freezing in locker plants and home units, (2) use of anti-browning agents and anti-oxidants (citric acid, ascorbic acid, sulphuric acid and others) to extend storage life of frozen products, (3) type and methods of packaging to prevent desiccation, oxidation and flavor loss, and (4) better means to sweeten frozen fruits for optimum flavor, color, and texture, by using combinations of sucrose, dextrose and corn syrups.
Food Proc. 72

Ind. Improved Marketability of Meat by Preparing Precooked and Frozen Products for Consumer Use. To develop methods of pretreating and cooking of meat which will result in cooked, or cooked and frozen, products of good and uniform quality starting with meat of low quality, and to evaluate the economic feasibility of those methods and products for commercial marketing purposes.
Agr. Econ., Home Econ. ES-345

Mich. Economic and Technical Problems of Marketing Prepackaged Fresh and Frozen Meats. (1) Learn photo-chemical process causing color degradation of frozen packaged meats when displayed commercially. (2) Test consumer acceptance of commercially processed frozen meat and learn processing and handling practices contributing to product deterioration. (3) Devise methods or processes by which consumer acceptance of prepackaged frozen meats will be increased. (4) Compare costs of frozen meat processing and distribution with those for fresh meats and estimate economic impact of a major change over to a system of frozen meat distribution.
Agr. Econ., Anim. Husb. ES-155

Minn. Preparation and Preservation factors in Relation to the Nutritive Value and Palatability of Meat. - 2. The Effect of Freezing and Freezing Storage upon the Quality of Meat. To learn the factors which the homemaker must take into consideration in order to have meat of good quality when preserving it by freezing storage.
Home Econ., Anim. Husb. 2003-2

Mo. Control of Microbial Development During Meat Processing. To control microbial development during meat processing by use of ultra violet radiation.
Anim. Husb. 257

Oreg. Formulation of New Commercial Food Products. (1) Develop formilas and procedures for using agricultural products in prepared or convenience foods, suitable for sale through various marketing channels. Learn (2) acceptability of these foods; (3) stability of foods. (4) Estimate costs of production of these foods.
Food & Dairy Technol. 352

Va. Processing and Merchandising Meats from Animals Produced under Virginia Farm Conditions. Investigate procedure and develop ways of processing and merchandising meats from cattle and sheep produced under Virginia farm conditions: hogs fed, managed and bred so as to increase ratio of lean to fat in carcass. Devise means of estimating carcass value in live animals; develop procedures for more precise evaluation of carcasses from meat animals in breeding, feeding and management research. Investigate methods of curing and storing home meat supplies.
Anim. Indus., Agr. Econ. 86074

3. Packaging and Processing Plant Operations

Ind. *Increasing the Efficiency in Meat Packing Plants in Indiana.* (1) Develop procedure for learning optimum combination of products to process in packing plants. (2) Learn methods for reducing costs of operating packing plants in State through improved use of space, labor and equipment. (3) Test recommendations synthesized from objectives 1 and 2.

Agr. Econ. ES-482

Kans. *The Relation of Packaging Material to the Keeping Quality of Frozen Pork.* Obtain specific information on merits of different packaging materials.

Anim. Husb., Chem., Home Econ. 424

Nebr. *Packaging Materials for Frozen Meat Storage.* To learn (1) relationship between water-vapor permeability at 0° F. of packaging materials for frozen meat and rate of shrinkage due to moisture loss in stored product, (2) cause of differences in widely divergent weight losses through same packaging material for different meats, and (3) economic relationships between different types of meat packaging materials.

Engin., Anim. Husb. 494

Okla. *Frozen-Food Locker and Processing Plants in Oklahoma.* (1) Learn from local frozen-food locker and processing plants: size of outlet for meat animals and importance of local and farm slaughter; processing services performed and charges for services. (2) Learn from patrons of frozen-food locker and processing plants: extent of local frozen storage as a source of meat and other food supplies; pattern of use of services provided, adequacy of present services and preferences for new services. (3) Learn costs of processing and other service operations, and evaluate operations of frozen-food lockers and processing plants with respect to efficiency of resource use.

Agr. Econ. 1035

4. Preparation and Cooking

Kans. *Effect of Internal Temperature on Weight Losses, Cost per Serving, and Palatability of Chilled Top Round Roasts.* Determine (1) effect of internal temperature on weight losses, cost per serving, and palatability of chilled top round roasts graded U. S. Choice and U. S. Good when cooked at 300° F. to internal temperatures of 176°, 185°, 194° F.; (2) average cooking time per pound for roasts cooked to the designated internal temperatures. (3) Study effect of adding 30 to 40 lbs. of chilled meat to an oven preheated to 300° F.

Home Econ. 436 (NC-31)

Kans. Tenderness of Certain Beef Muscles at Several Stages During Cooking. (1) Study changes in tenderness of beef during cooking as measured by organoleptic, physical, histological, and chemical tests. (2) Develop histological staining procedures specific for frozen sections of beef muscle and study methods for reading and interpreting microscopic sections. (3) Attempt to isolate effect of changes in condition of non-collagenous structural muscle protein on tenderness of beef muscle.
Home Econ. 479

Mich. Effect of Large Quantity Preparation and Service on Cost and Palatability of Six Styles of Cured Ham. To learn (1) effect of specific cooking procedures on cooking losses of cured hams of different styles; (2) relative palatability of hams of different styles. (3) Formulate recommendations for standard procedures of cooking to obtain optimum quality and yield from hams packaged in different styles.
Home Econ. 838 (NC-31)

Minn. Preparation and Preservation Factors in Relation to the Nutritive Value and Palatability of Meat. - 1. The Effect of Different Methods of Cooking upon the Nutritive Value of Meat. To learn the effect of different methods of cooking, and the effect of reheating, upon the vitamin content of meat.
Home Econ., Anim. Husb. 2003-1

N. Y. (Cornell) A Comparison of the Effect of Electronic and Conventional Cooking on the Quality of the Product and Cooking Time. Compare effect of cooking in a home electronic oven, in an institution electronic oven, and in a conventional electric oven on subjective palatability qualities, cooking losses, cooking times, objective tenderness, objective color, and retention of thiamine, moisture, and fat.
Food and Nutr. 199

Ohio The Effects of Certain Factors in the Roasting of Beef in Quantity. Determine effect of size and temperature on preparation losses, yield, and cooking time of beef roasts.
Home Econ. 168 (NC-31)

D. Marketing

Section on marketing is limited to the restricted fields indicated. Other marketing research may be located by reference to: ARS-23-8-14c - Livestock, Meats and Wool

1. Consumer Acceptance

Ala. Motivating Factors in Consumer Purchases of Beef. Identify and evaluate decision-making factors affecting consumer purchases of block-beef. This is an exploratory study to aid in tentative identification of the most important factors. Projective techniques, primarily as unstructured interviews, will be tried. Opinions of specialists in sociology, psychology, and family life, will be sought and used for formulation of questions and selection of techniques to be used in collecting the data.
Agr. Econ. 579 Coop. USDA (SM-19)

Ala. Why Alabama Consumers Select Specified Foods. (1) Learn sources and types of data used by consumer in making decisions; factors involved in decision making; relation of items in above statements to purchase and use of selected foods. (2) Test and measure consumer reactions and response to selected changes in market resulting from controlling changes in kind of packages, or different form of advertising.
Agr. Econ., Home Econ. 581 (SM-13)

Ga. Motivating Factors in Purchases of Beef by Families in Georgia. (1) Learn factors motivating consumer purchases of block beef for Georgia families. (2) Evaluate the satisfactions of consumers in their purchases of block beef.
Home Econ. 330 (SM-19)

Iowa Consumer Demand for Pork as Measured by Price and Quality. To learn (1) present status of consumers' ability to distinguish quality in pork, (2) consumer demand by measuring how much consumers will pay for pork differing in quality; and (3) how well present method of selling pork reflects consumer demand.
Anim. Husb., Econ., Statis. ES-282

Ky. Trade and Consumer Acceptance of Kentucky Spring Lambs. To find (1) if lambs now produced in State are as acceptable to trade and consumers as early lambs produced in other States, (2) if wider geographic distribution of sale of lambs in retail stores would be possible and would increase consumption, (3) if different merchandising methods would increase consumption of lambs.
Agr. Econ., Anim. Husb. 1007 (SM-7)

Ky. Processing Costs and Consumer Acceptance of Light Weight Hogs. Learn the cost of processing and consumer acceptance of pork from hogs weighing approximately 160 lbs.
Anim. Husb., Agr. Econ. 1011

La. To Identify and Appraise Motivation Factors Influencing Consumers in the Purchase of Beef. (1) Identify some of motivating factors influencing consumers in their choice of beef. (2) Learn motivation factors affecting selection and purchase of beef as they relate to occupation, income, education, age, time married, family composition, nationality, race, religion, and place of residence of families; learn habits of families with respect to their knowledge and use of beef and grades, cuts preferred and preparation methods used.
Home Econ. 917 (SM-19)

La. Acceptability of Selected Retail Cuts from Beef Cattle Produced under Different Managerial Practices. (1) Identify and evaluate characteristics suitable for predicting eating quality of beef. (2) Study flavor, tenderness, and general acceptance of beef from cattle fed and bred differently. (3) Study flavor, tenderness, and general acceptance as related to fat, moisture, and elastin and collagen content of cut and market grades. (4) Learn relative cooking losses of pre-fabricated beef cuts from animals produced under different managerial practices and to relate these to chemical and palatability measurements.
Home Econ., Anim. Indus. 943 (SM-19)

Mo. Economic Significance of Pork Grades in Relation to Consumer Acceptability Preference among Retail Cuts. Learn if consumer preferences would justify sale of pork primal cuts from various grades of pork carcasses at different prices per pound by learning (1) what proportion of consumer population detects a difference in eating satisfaction between grades, (2) grade preferred by consumers, (3) economic significance of preferences, (4) if consumers can identify grades, (5) merchandising potentialities of various grades, (6) effect of processing in relation to consumer preference.
Agr. Econ., Anim. Indus., Home Econ. ES-364

Mo. Improving the Acceptability of Meat. Improve: (1) eating qualities of meat and discover potential of cooking and processing methods, breeding, and feeding in such improvement; (2) acceptability of meat as it is affected by buyer attitudes and motivations; (3) merchandising characteristics of meat which affect handler and buyer utility; (4) predictability of acceptance of various cuts from animals of specified characteristics. (5) Explore economic implications of improved meat acceptability for producer, merchandiser, and consumer.
Anim. Husb. ES-589

Oreg. Relationships Between the Qualities of Fresh Beef Cuts Consumers Prefer and the Qualities of Those Cuts Available in Retail Stores in Oregon. Learn extent to which quality of fresh beef cuts offered to Oregon consumers in retail markets meets the desires of these consumers as shown by preference studies.
Food Technol. ES-511

Oreg. Development of Quality Prediction Techniques for Use in Developing Marketing of Frozen Beef Through Frozen Fruit and Vegetable Channels. Learn relation of various carcass traits and composition components to eating quality of beef cuts from beef produced under controlled production conditions and relate these to consumer preference data with a view to marketing frozen beef through existing frozen fruit and vegetable marketing channels.
Dairy & Anim. Husb., Food & Dairy Technol. ES-569

Pa. The Palatability Panel as a Tool for Determining Quality and Consumer Preference of Food. (1) Develop techniques and procedures for selecting, training, and conducting analytical taste panels. (2) Find methods of increasing objectivity in an analytical taste panel. (3) Learn relationship between analytical taste panel and consumer acceptance testing.
Home Econ. 1257 (NE-15)

Pa. Factors Affecting Acceptance of New Food Products. (1) Learn consumer attitudes related to acceptance of new food products. (2) Analyze selected variables associated with attitudes concerning acceptance of new food products.
Agr. Econ., Rural Sociol. 1340

S. C. Consumer Preference for Beef as Influenced by Type of Fattening Ration. Learn quality and compare consumer and trade preference for beef from steers full fed a grain ration while on Coastal Bermuda pasture with beef from steers full fed on a similar grain ration in dry lot.
Agr. Econ., Anim. Husb., Food Technol. & Home Nutr. 448

Texas Decision Making Factors in Block Beef Purchases and Their Relation to Beef Acceptability as Determined by Objective Tests and Panel Ratings on Carcasses from Cattle of Known History. To identify and evaluate (1) decision making factors in block beef purchases; (2) characteristics suitable for predicting eating quality of beef. (3) Recommend classification of block beef supply according to preferences of consumer and wholesale buyers.
Anim. Husb., Home Econ., Agr. Econ. & Sociol. 1093
Coop. AHRD, ARS (SM-19)

Texas Consumer Acceptance of Prepackaged Frozen Retail Cuts. Learn: (1) consumer acceptance of frozen prepackaged retail meat cuts offered in various types of packages; (2) chemical and microbiological changes affecting storage life of prepackaged frozen retail cuts of beef and processing methods and storage conditions responsible for or contributing to these changes. (3) Develop suitable laboratory tests to accurately measure affects of chemical and microbiological changes and to correlate results with organoleptic tests. (4) Learn processing and storage conditions that will result in maximum storage life of prepackaged frozen beef retail cuts and yet present an acceptable frozen product.
Anim. Husb. ES-365

Texas Factors Affecting Consumption of Lamb in Texas. Learn (1) influence of selected racial, income, and environmental factors upon individual consumption and attitude toward lamb; (2) knowledge of homemakers concerning grades, variety of cuts, and recommended methods of preparation; (3) Texas retail practices and attitudes of meat retailers toward lamb; (4) influence of price and availability of other meats on lamb consumption. (5) Analyze potential price effects of increased lamb consumption. (6) Learn effect of conformation, fatness, and USDA grade on cut-out value of fine wool, fine wool crossbred, and mutton bred lambs relative to market values. (7) Evaluate eating qualities of these three types of lambs relative to consumer acceptance.
Agric. Econ., Sociol., Anim. Husb., Home Econ. ES-367

Va. Analysis of Decision-Making Factors Employed by Consumers in Determining the Quality and Quantity of Beef Purchases. (1) Identify and evaluate major decision-making factors used by consumers in selection and purchase of beef. (2) Evaluate consumers' knowledge of selected physical or grade characteristics. Learn: (3) consumers' satisfaction or dissatisfaction with respect to kinds and quality of beef readily available to them and retail merchandising techniques in local markets; (4) kinds, qualities, and form in which beef is sold in selected areas; (5) kinds and quality beef purchased by institutions and their reasons.
Agr. Econ. 93908 (SM-19)

Wyo. Consumer Acceptance and Evaluation of Lamb from the Feed-Lot and Range. (1) In a test area, learn consumption and preference patterns for lamb as related to family characteristics. (2) Investigate possibilities for increasing lamb consumption through improved availability at retail stores.
Agr. Econ., Anim. Prod. ES-536

2. Demand and Distribution

Ill. The Market for Meat in Meals Eaten Outside Homes. Learn: (1) current size of market for meats used outside of homes and evaluation of market with particular reference to kind of meat; (2) basis for decisions in kinds, qualities, and quantities of meats used by these firms; (3) channels of movement of meats to these various commercial and institutional users; (4) potential markets in this area and means of expanding.

Agr. Econ. ES-585

Iowa The Economics of Location in the Meat Packing Industry. (1) Examine geographical organization and structure of meat packing industry and analyze economic factors influencing present location of meat processing facilities. (2) Learn effects of relations between freight rates on raw products and freight rates on finished products on existing patterns of location. (3) Construct models by which changing location of slaughter can be predicted, given geographical patterns of production and geographical patterns of consumption, and expected freight rate relationship.

Econ. and Sociol. 1383 Coop. AMS

La. Marketing Livestock and Livestock Meat Products in Louisiana. To develop information for and ways and means of improving the efficiency of marketing livestock and livestock products, except dairy and poultry, in order to increase Louisiana producers' returns, maintain stable marketing system, and provide consumers with high quality livestock products at reasonable prices.

Agr. Econ., Anim. Indus. 638 (SM-7)

Mo. Economic and Technical Feasibility of Retail Distribution of Frozen Meats. To (1) determine technical feasibility of frozen meat distribution, (2) learn efficient layout, product flow in central plant and retail store, (3) compare costs of retailing meats in frozen form with those of fresh meats, (4) learn economic feasibility of merchandising retail meat cuts in frozen form, through regular retail channels and bulk sales to consumers, (5) learn consumer acceptance and preference for the frozen product.

Agr. Econ., Anim. Husb., Home Econ. ES-363 Coop. AMS

Nebr. Methods and Costs in the Retail Distribution of Meat and Meat Products. To (1) learn methods and practices followed, services performed, volume of meat handled per store, (2) make analyses of costs and margins of retail marketing agencies at various sales volumes and by various methods, (3) study demand for meat in various forms and packages, (4) learn effectiveness of pricing mechanism in expressing consumer-preference to livestock producers.

Agr. Econ., Anim. Indus., Home Econ. 420 Coop. USDA

II. POULTRY MEAT

A. Effect of Production Practices on Broiler Quality

Ark. Meat and Egg Production of Chickens as Affected by Housing. To learn (1) effects of various quality levels of housing on poultry production, with broilers and layers (2) production performance of broilers and layers as effected by different housing levels.
Anim. Indus., Vet. Sci. 415

Ark. Evaluation of Techniques in Measuring Broiler Performance. (1) Evaluate procedures in experimental design for random sample testing in poultry. (2) Learn the repeatability of several broiler traits as: body weight, feed conversion, uniformity, carcass yield, and grade. (3) Develop an accurate measure of yield of individual body parts as required for cut-up chicken markets.
Anim. Indus., Vet. Sci. 500

Del. Environmental Conditions in Broiler Houses. (1) Study artificially produced conditions in insulated broiler houses to learn effects of temperature and humidity variations in combination with rates of air exchange, concentration of ammonia and dust in the air on broiler production efficiency. (2) Establish minimum ventilation requirements that should exist in broiler houses for maximum production efficiency.
Poultry Indus., Agron., Agr. Engin. 38-A (NE-8)

La. The Possible Inheritance and Means of Elimination of Melanic Pigment Found in the Internal Membranes of the Abdominal Region of Broilers. Learn inheritance of this factor so that steps may be taken by breeders to eliminate this trait from broiler stock.
Poultry 915

La. The Effects of Hormonization of Eviscerated Yields and Market Quality of Caponettes as Compared to Broilers. (1) Compare broilers with caponettes regarding dressing percentages, market quality, and return to producers. Learn (2) most satisfactory age to administer hormones, amounts to administer, and which one is most satisfactory. (3) rate and amount of fat deposition as it might effect consumer acceptance.
Poultry 953

Pa. Environmental and Management Factors Affecting the Quality of Poultry Meat and Eggs. To determine (1) effect of the following upon temperature and relative humidity in poultry house — a. ventilation with pressure inlets as compared to exhaust fans and conventional slots and windows, b. forcing air into poultry house from north and south sides, and c. solar energy entering building through insulated windows; (2) how condition of litter is affected by inside temperatures, and relative humidities as related to method of ventilation and solar energy; (3) effect of removals of droppings by various methods and at various intervals, upon condition of floor litter and inside temperature and humidity; (4) extent that floor space required by layers and broilers is affected by — a. method of ventilation, b. method and frequency of removal of droppings, and c. control of solar energy; and (5) effect of temperature and relative humidity in poultry house, methods of removal of droppings, and control of solar energy upon a. cleanliness of egg produced, b. egg size and production by layers, c. market egg quality, d. rate of gain and market quality of carcass, and e. health of flock.
Agr. Engin., Poultry Husb. 1148A (NE-8)

Va. Inbreeding and Selection as Methods for Improving Broiler Production. To determine extent to which close but flexible inbreeding and rigid selection can be used to develop purebred strains of domestic fowl which are more efficient in production of broilers than strains now available.
Poultry Husb., Anim. Path. 86016 Coop. ARS

W. Va. Breeding for Efficient Production of Eggs and Meat. To (1) select families of meat-type chickens for improved genetic capacity for productive characteristics; (2) learn effect of continued mass selection for improved broiler qualities on reproductive characteristics; and (3) study methods to combine high egg producing capacity with superior broiler qualities, using strains from 1 and 2 above, and breed crosses.
Poultry Husb. 74 (NE-6)

B. Processing and Utilization

1. Processing Procedures

Del. Effects of Scald on Processing, Carcass Quality, and Chemical Changes in the Skin of Broilers. Learn effects of conditions of scald from 128-140° F. for period of time on ease of removal of feathers, quality of carcass, chemical changes in proteinaceous and lipid components of skin of broilers.
Anim. & Poultry Indus. 8-PI

Ga. Curing and Smoking Pork and Turkeys. To learn (1) best procedure for curing and smoking pork and mature turkeys in freezer lockers and on farm; (2) best method of handling same before and after curing and smoking; (3) consumer preference for pork and turkeys cured and smoked.
Food Proc. 76

Ill. Effect of Low Levels of Ionizing Radiation on the Storage Life of Refrigerated Chicken. (1) Determine effects of low levels of ionizing radiation on storage and marketing of dressed chicken; evaluate storage life, under refrigeration, of irradiated and non-irradiated chicken, and the organoleptic properties of stored chicken at selected intervals during storage.
Food Technol. 50-394

Ind. Extending the Shelf Life of Fresh Dressed Poultry. Learn (1) effect of various fungistats and fungicides (used with antibiotic treatment) on development of yeasts; (2) storage life which can be obtained by use of chlorinated water in chill tanks, in addition to antibiotics.
Poultry Sci. 775

Ind. The Effects of Processing, Holding (During Marketing) and Preparation for Consumption of Poultry Meat upon its Tenderness and Flavor. To learn effects of various methods of processing, holding, storage, and preparation of poultry meat upon tenderness, juiciness, flavor, and other organoleptic properties.
Poultry Sci., Home Econ. 836

Ind. Freezing of Poultry Meat. To learn (1) relative effectiveness of various freezing techniques on quality of poultry meat, (2) comparative costs between immersion freezing and wind tunnel freezing of poultry meat.
Poultry Sci. 856

Iowa Poultry and Egg Marketing: Technological Aspects: Measurements of Quality in Poultry and Egg Products Using Subjective and Objective Tests. (1) Establish criteria of quality for eggs and poultry products. (2) Measure changes in appearance, palatability and functional properties of eggs. (3) Learn factors affecting decline in quality during processing and storage. (4) Develop methods for maintaining quality in the period elapsing between producer sale and consumer purchase. (5) Evaluate efficiency of any new methods that might reduce losses or minimize changes in quality of poultry and egg products. (6) Develop objective tests for use in estimating quality. (7) Establish procedures for subjective evaluation which will accurately measure differences in fresh, processed, and stored eggs and poultry.
Home Econ., Poultry 1026 (NCM-7)

Iowa

Relative Merits of De-Boned and Whole Turkey for Large Quantity Preparation and Service. (1) Investigate relative merits of various methods of dressing, preparing, cooking, and serving turkey for large quantity food service in regard to yield, cost, and quality, and acceptability. (2) Learn certain factors related to most advantageous utilization of turkey in quantity food service. (3) Formulate recommendations for standard procedures regarding selection, dressing, preparation, cooking and serving of turkey in quantity. (4) Increase use of quality food service.

Home Econ., Poultry Husb. 1338 (NC-31)

Iowa

Effect of Pretreatments and of Type of Packaging Material on the Quality of Fresh and Frozen Broilers in Market Channels. To (1) investigate methods for extending the market life and/or maintaining the quality of poultry products in packaged form; (2) evaluate the efficiency and effectiveness of different types of packaging materials in maintaining quality of fresh and/or frozen poultry; (3) evaluate the practicality and effectiveness of pretreatments which might be used on cut-up poultry: a. to minimize seepage of fluid from cut tissues of broilers packaged and sold fresh; and b. to improve the acceptability of frozen birds; (4) investigate methods of controlling microorganisms associated with development of off-odor, slime and other manifestations of spoilage of ice-packed broilers; and (5) evaluate predominant organoleptic and microbiological changes which occur during handling and storage of fresh and frozen poultry.

Home Econ., Poultry Husb., Bact. ES-304

Md.

Quality Retention in Poultry Meats as Influenced by Methods of Processing. Study: (1) use of CO_2 and various other anesthetizing agents and their effects on blood loss, ease of feather removal, and tenderness; (2) effect of different methods of killing on nervous control of feather muscle; (3) interrelation of time and temperature of scalding as influenced by killing method; (4) effect of above variations in processing procedures on quality and appearance.

Poultry M-100

Mich.

Poultry Meat Products. To determine (1) suitable processing techniques and methods of handling off-grade, low grade, and other poultry with less consumer demand; (2) yield and cost of preparation of various classes of poultry meat; (3) new processing methods and new items so that a greater variety of products are available; (4) consumer preferences and acceptance of old and new poultry meat products; and (5) factors in quality deterioration and means to minimize losses.

Poultry Husb., Physiol. 107

Minn. A Study of Moisture Levels in Processed Poultry. To (1) study effects of moisture level in processed poultry on cooking losses, yields of cooked edible meat, and palatability; (2) compare keeping quality of low and high moisture level birds, fresh and frozen; (3) study factors affecting water absorption and retention by poultry during the chilling process and subsequent thereto.
Poultry Husb. 2314

Mo. Methods of Processing Poultry for Commercial Precooked Frozen and Canned Products. (1) Compare various cooking procedures for tenderness and cooking losses. (2) Develop methods for cooling meat before boning to improve shelf life and wholesomeness. Study (3) various cooling temperatures and time periods of boned, precooked meat for prolonged shelf life and low bacterial counts in finished, frozen or canned product; (4) effect of freezing temperature and time for tenderness, flavor, storage life, and wholesomeness.
Poultry 323

Mont. Processing, Packaging and Shelf-Life of Fresh Dressed Poultry. To learn (1) if the addition of fat to a diet will effect shelf-life of poultry; (2) what effect temperature of scalding water has on shelf-life; (3) effect the addition of antibiotics and bactericides (as chlorine compounds to cooling water) prior to packaging has on shelf-life. (4) Study various types of packaging in relation to shelf-life.
Poultry Indus. MS-997

Oreg. Formulation of New Commercial Food Products. (1) Develop formulas and procedures for using agricultural products in prepared or convenience foods, suitable for sale through various marketing channels. Learn (2) acceptability of these foods; (3) stability of foods. (4) Estimate costs of production of these foods.
Food & Dairy Technol. 352

Pa. The Effectiveness of Methods of Freezing Eviscerated Poultry on Market Quality. Learn: (1) times for zone of crystal formation in eviscerated poultry frozen by airblast and direct-immersion freezing; (2) effect of stilbestrol, temperature of chill room storage, and method of freezing on certain aspects of carcass quality of acronized poultry.
Poultry Husb., Agr. Engin., Agr. Biochem. 1078-B

S. C. Investigation of Methods for Increasing the Utilization of Poultry. Increase potential for use of poultry through development of ready-to-eat or prepared items.
Food Technol., Home Nutr. 421

Va. The Improvement of the Market for Poultry and Poultry Products Through the Development and Application of a Broader Knowledge of Processing Technology. (1) Develop processing techniques to reduce processing defects, decrease carcass shrink and destruction of nutrients, retard deterioration, preserve desirable flavor and increase tenderness, juiciness and overall acceptability of poultry and poultry products. (2) Develop new poultry products as sausages, loafs, salads, soups, precooked and frozen items with or without stuffing or garnishes which would have high consumer appeal and could be economically produced and marketed. (3) Increase efficiency of marketing process through development of more practical uses for poultry offal. (4) Develop practical application of results of study to the industry.

Poultry Husb., Agr. Econ., Statis. 86079

Wash. Cooling and Freezing of Poultry Meat. To learn (1) cooling and freezing rates for poultry, (2) differences in appearance of poultry cooled and frozen by various methods, (3) weight changes in fresh dressed poultry meat as influenced by methods of cooling and freezing, (4) effect of different methods of packaging poultry as an influence on freezing rates, (5) amount of moisture loss during thawing of meat as influenced by cooling and freezing methods, (6) tenderness as affected by cooling, freezing, and thawing treatments.

Agr. Engin. 1275

2. Packaging and Processing Plant Operations

Del. The Effect of Various Merchandising Activities and Packaging Methods Upon the Demand and Consumption of Poultry Meat. (1) Quantitatively assess consumer reaction to various methods of increasing poultry meat sales and of packaging poultry meat. (2) Learn advantages and disadvantages of prepackaging fryers at processor, rather than retail level.

Agr. Econ., Anim. & Poultry Indus. 58-AE (NEM-21)

Ga. Poultry Processing Plants, Equipment, and Facilities. To (1) determine comparative efficiency of selected poultry plants varying in size and sequence of operations; (2) develop plant layout principles and improved materials, handling and work methods; and (3) design processing plants with equipment and facilities for conducting all operations incident to receiving processing and final disposition of finished product and supplies.

Agr. Engin. 308 Coop. AMS

Maine Effect of Various Promotional Activities and Packaging Methods upon the Cost of and Demand for Poultry Meat. (1) Assess quantitatively consumer reaction to: various methods of promoting poultry meat and of packaging poultry meat. (2) Learn advantages and disadvantages of prepacking fryers at processor, rather than the retail, level.
Agr. Econ. 110 (NEM-21)

Pa. Electric Potential in Processing Poultry for Market. Learn: (1) most effective and practical combinations of voltage, current, and time of application to provide unconsciousness without heart fibrillation; (2) best place for applying electric shock to produce most nearly complete bleeding; (3) effect of electric potential on carcass quality.
Poultry Husb., Agr. Engin. 1078-A

C. Meat Quality

1. Physical, Chemical, and Microbiological Properties

Colo. The Influence of the Color and the Amount of Carcass Fat on the Market Grades of Dressed Turkeys. (1) Learn amount of fat on turkey carcass without resorting to a total carcass analysis and develop method of measuring carcass fat color. (2) Correlate color and amount of fat found in turkeys of known nutritional background with grade given these turkeys. (3) Learn variation in color and amount of carcass fat marketed commercially in area; (4) consumer preference for color and quantity of fat in frozen turkeys; (5) relative roasting quality of frozen turkeys of different fat color and quantity and correlate this with consumer preference.
Poultry 54

Del. Chemical Aspects of the Marketing of Poultry Meat. (1) Develop better physico-chemical measures of changes in quality occurring during marketing of fresh, eviscerated broilers. (2) Associate these physico-chemical changes with organoleptic and bacteriological evaluations of quality.
Agr. Chem. 28-C

Del. Quality Losses of Broilers in the Marketing Channels and Association Between Quality and Price. (1) Measure relation of processing techniques and marketing practices to quality losses between farm and processing plant and within processing plant, between processor and wholesaler, between wholesaler and retailer, within retail stores. (2) Learn inter-relation of quality and price at processor, wholesale, and retail level.
Agr. Econ. 31-AE

Del. Causes and Development of Bruises During the Marketing of Broilers. (1) Study possible effects of marginal vitamin E, calorie-protein ratio, added fats and fatty acids, high salt levels before slaughter, etc., on susceptibility of broilers to bruising during marketing. (2) Study biochemical and physiological changes in bruised tissues including: Hemoglobin breakdown products, concentration of electrolytes, peroxide levels, and tocopherol levels as an aid in locating procedures in marketing likely to cause bruises.

Anim. & Poultry Indus. 59-AI

Hawaii An Investigation of the Influence of Different Dietary Fats on Tissue Lipids of Chickens. (1) Measure in chickens the influence of fat deficiency and of nature of dietary fat on: liver cholesterol synthesis, blood cholesterol levels, lipid deposition in arteries, lipoprotein lipase activity, degree of saturation of fats deposited in the tissues. (2) Learn if there is any correlation between tissue fat saturation or lipoprotein lipase activity and atheroschlerosis.

Foods & Nutr., Poultry Sci. 526

Kans. The Percent Shrinkage and Quality of Turkeys and Broilers in Market Channels. To investigate percent shrinkage of dressed turkeys and broilers during dressing, storage, and cooking, in order to determine condition under which most pounds of salable product may be produced.

Poultry Husb., Chem., Home Econ. 387 (NCM-7)

La. Market Quality as Determined by Carcass Composition of Broilers. To (1) determine effect on market quality of differences in percentage of moisture, fat, protein, and ash in broilers of varying ages, weights and breeding; (2) determine effects of varieties in the diet upon market quality as determined by chemical composition of broilers; (3) determine relationship of specific gravity to each of constituents in (1); and (4) correlate relationships of variations in carcass composition with market quality.

Poultry Indus. 814

La. The Effect of Chemical Composition of Eviscerated Poultry on Market Quality and Consumer Acceptance. To learn (1) relationship between chemical composition of eviscerated carcasses of broilers, fryers, and roasters, and yield of cooked carcasses and cooking losses, (2) Effect of chemical composition of carcasses of broilers, fryers, and roasters on consumer acceptance of cooked carcasses with regard to: flavor, dryness or juiciness, and physical appearance.

Poultry Indus. 957

Maine Factors Affecting the Shelf-Life of Pre-Cut Packaged Poultry. To study (1) role of microbiological populations and their relation to the storage life of pre-cut packaged poultry; (2) effect of antibiotics and in plant chlorination on this problem; (3) effect of container and over-wrap on odor and deterioration of packaged product.
Food Proc. 98

Maine Reducing Quality Losses in Handling and Processing Broilers and Developing More Efficient Work Methods, Equipment and Facilities for Handling, Processing, Grading and Packing Maine Broilers. (1) Learn nature, cause, and amount of loss in quality of broilers during pick-up operation and each phase of processing. (2) Find ways of increasing productivity of labor employed in handling, processing, packing poultry products, and reducing losses from bruises and deterioration.
Agr. Engin. ES-392

Mich. Minimizing Quality Losses of Poultry Meat Products in Market Channels. To learn (1) factors affecting decline in poultry meat quality during processing and storage; (2) variation in initial quality and changes occurring in quality of meat obtained from chickens had received newer feed ingredients; and (3) variations in initial quality and changes in quality of meat from chickens which had received dosages of commonly administered hormone substance and drugs.
Poultry Husb., Home Econ. 100 (NCM-7)

Mo. Factors Affecting the Flavor of Poultry. To learn (1) relationship of kind and amount of ingredients in ration to flavor of cooked broilers, fowl, roosters, and turkeys, (2) influence of present processing methods on flavor changes in cooked birds, and (3) influence of packaging materials and storage conditions on flavor stability.
Poultry 313

N. J. Factors Affecting the Market Quality of Jersey Buff Turkeys of Varying Ages. To determine rate of growth of Buff turkey poults up to 12 weeks of age for use of such poults as commercial turkey broilers, and the advantages, if any, of the Buff turkey over others.
Poultry Husb. 543

Ohio Methods of Maintaining Quality in Poultry Products: B. Poultry Meat, 1. Shelf Life of Fresh Slaughtered, Unfrozen Poultry. To determine keeping quality (shelf life) of ready-to-cook cut-up poultry when: (1) poultry has been fed high level of antibiotics, (2) held at different temperatures, (3) ice packed and in chilled air, (4) dipped in chlorine, antibiotic, and other solutions, (5) dipped in boiling water, hot stabilized oil and adhesive dips containing germicide, (6) packaged in vented and airtight containers, (7) repeated freezing and defrosting.
Poultry Sci. 74 (NCM-7)

Okla. Measurement of Stored Estrogens in Dressed Chickens by Radioisotopes Assay Techniques. To (1) adapt present radioisotopes assay techniques to problem of measuring residual estrogen in the flesh of market poultry, and (2) determine amounts of residual estrogen found in edible parts of market poultry when estrogen has been administered orally.
Poultry 887

S. Dak. Maintaining Quality of Turkey Meat in Market Channels. (1) Study possible factors which may influence keeping quality of turkeys in storage. (2) Develop methods for measuring quality.
Poultry 261-R (NCM-7)

2. Nutritive Value

Ark. The Biological Value of the Proteins in Different Cuts of Chicken Meat and in Chicken Organs. (1) Learn biological value of proteins in white and dark meats of chicken muscle and neck meats in friers, broilers, and hens; also in livers, gizzards, hearts, and lungs, as to growth, reproduction, and lactation. (2) Reinvestigate value of proteins in chicken muscle meats, beef, pork, lamb and veal.
Agr. Chem. 418

Hawaii A Study of the Nutritive Value of Foodstuffs in Hawaii by Means of Chemical Analyses, Microbiological Assays and Biological Experiments. To (1) assemble data on the chemical composition and nutritive values of foods used locally in order that such data may be used in evaluating the diets of various groups or individuals in Hawaii and permit comparisons with foods used and/or analyzed elsewhere; (2) furnish data as needed on local foods used for poultry and other farm animals; (3) make other occasional food analyses as requested.
Nutr. 501

Ind. Quality Classification in Relation to Nutritive Value of Poultry Products. Learn (1) relation existing between grading factors and nutritive value of poultry products; (2) changes in nutritive properties of poultry products during time of marketing; (3) effect of various processing and marketing techniques on nutritive properties of poultry products.
Poultry Sci. 961 (NCM-7)

Mo. The Factors Affecting the Palatability and Nutritive Value of Poultry. To learn (1) loss of water soluble organic material due to processing, (2) possibility of nutritive loss due to packaging materials and storage conditions, (3) amount of heat labile vitamins, essential amino acids (lysine and methionine) in raw meat and meat fried, roasted, or broiled. (4) Conduct palatability tests on poultry prepared by different processing methods and cooking procedures to learn which will produce better products.
Home Econ. 314

D. Marketing Studies

Section on marketing is limited to the restricted fields indicated. Other marketing research may be located by reference to: ARS-23-8-14e - Poultry and Poultry Products

1. Consumer Acceptance

Del. Consumer Response to Varying Prices for Broilers. Learn short run price elasticity of demand for broilers during summer and winter seasons.
Agr. Econ. ES-568

Ga. Consumer Selection of Poultry and Other Meats in Retail Markets. Learn (1) factors affecting selection of poultry by purchasers of family food supplies; (2) sources and kinds of information used by consumers in making decisions in purchasing poultry in retail outlets; (3) effects of special promotional programs on purchases of poultry and other protein-class foods.
Home Econ. M-329 (SM-13)

Idaho Poultry Products Available in Retail Stores in Idaho and Some Factors that Affect their Availability, Quality and Consumer Preference. (1) Study availability of various types and forms of market poultry and of various grades of eggs in retail stores. (2) Survey facilities and methods used by retailers for maintaining quality of poultry and eggs. (3) Check actual quality of poultry products in retail stores. (4) Learn source of poultry products available in retail stores and retailers' reasons for selecting source. (5) Obtain from retailer information regarding consumer preference for various poultry products.
Poultry Husb., Home Econ. 306

Md. Alternative Merchandising and Promotional Methods Affecting Demand for Poultry Meat. (1) Quantitatively assess consumer reaction to various promotional activities and packaging methods designed to increase consumption of poultry meat. (2) Learn feasibility of marketing poultry under different methods of of handling and distribution (at dressing plant and retail store levels).

Agr. Econ., Mktg. A-26-am Coop. ARS, AMS, FCS (NEM-21)

Mo. Flavor Preferences Affecting Consumer Choice of Poultry Meats. To test consumer acceptance and preference for (1) existing uncooked poultry meat products, (2) commercially cooked poultry meat products, (3) various packaging techniques. (4) To test impact on sales of results of (1), (2), and (3).

Agr. Econ. 315

P. R. Consumer Purchases and Acceptance of Broilers Under Various Merchandising Practices. To find most acceptable ways of merchandising broilers so as to maximize sales. (1) Visit super markets, independent grocery stores, chain stores, and processed poultry plants to learn merchandising practices used in selling broilers. (2) Meet with persons engaged in food distribution program for Puerto Rico to learn information needed for merchandising broilers, etc.

Agr. Econ., Rural Sociol. 98 (SM-15)

S. Dak. The Development and Analysis of Improved Techniques for Marketing Poultry Products. To determine (1) characteristics of, services by, and practices of marketing agencies handling poultry products, and effect of practices on quality, losses, costs, and prices; (2) costs, margins and operational efficiency of marketing functions at various stages in market channel for poultry products; (3) adequacy, variability, and reliability of grades, standards, prices and other market news and information; (4) demand and preferences for poultry products in fresh, frozen, pre-packed and other forms as are or may be distributed through various outlets; and (5) relationships of methods of marketing poultry products to farm production practices and to shifts in poultry production.

Poultry 175 (NCM-14)

Tenn. Evaluation of Consumer Acceptance of Broilers of Various Degree of Skin Pigmentation. To (1) learn nature and extent of consumer acceptance of broilers of various degrees of skin pigmentation; (2) analyze more important factors related to consumer acceptance of broilers of various degree of skin pigmentation, including family characteristics and type of packaging at the retail level.

Agr. Econ. Rural Sociol., Poultry 166 Coop. AMS (SM-15)

Texas Consumer Buying Habits, Brand Preferences and Store Distribution of Poultry Products in Houston, Dallas, Austin, and Bryan-College Station. To determine poultry products available, consumer buying habits, and brand preferences for poultry products.
Agr. Econ., Home Econ., Poultry ES-371

Texas Consumer Preference and Motivations in Buying Poultry Products in Relation to Product Characteristics and Merchandising Methods. (1) Learn motivating factors influencing consumer preferences among the different kinds of poultry products, with respect to different characteristics of the product as skin color, and in relation to type of packaging at retail level. (2) Appraise effectiveness of merchandising methods in retail stores influencing consumers to buy poultry products.
Agr. Econ. & Sociol., Poultry Husb. 1101 (SM-15)

2. Demand and Distribution

Ala. Marketing Poultry Meats in Retail Food Stores in Non-metropolitan Areas. To learn (1-2) availability of poultry meats and current practices in merchandising poultry meats in retail food stores in non-metropolitan areas. (3) Evaluate possibilities of developing new market outlets and increasing sales of poultry meats in non-metropolitan areas.
Agr. Econ. 568 (SM-15)

Storrs (Conn.) The Short and Long-Run Changes in Demand for Poultry and Poultry Products as These Relate to Alternative Marketing Methods and to Marketing Costs. (1) Specify variables appearing to influence demand for poultry meat. (2) Measure consumer responses to changes in variables specified above for U. S. and Northeast. Learn (3) reliability of variables as measured in (2); (4) effects of shifts in income, other product prices, population, etc., on quantity of chicken consumed and producers' income in some future years.
Agr. Econ. 266 (NEM-21)

Ga. Marketing Turkeys in Georgia. Learn improvements that may be made in the marketing practices and price reporting systems for facilitating establishment of prices which accurately reflect local supply and demand conditions.
Agr. Econ. M-16 Coop. AMS (SM-15)

N. H. Impact of Alternative Methods of Marketing Poultry Products on Resource Requirements. To determine (1) effect of various arrangements for procurement, handling, and plant processing and sanitation upon marketing costs, (2) effect of various distribution methods and systems upon marketing costs, (3) impact of integration on marketing costs, location of decision making, and payments to factors in poultry meat industry. (4) To develop, from data obtained, ideal marketing systems for New England poultry and compare these with present systems as to costs and efficiency in resource use.
Agr. Econ. 127 Coop. AMS (NEM-21)

Pa. Merchandising Agricultural Products. A. Merchandising Poultry Products. To (1) determine concepts of want satisfying attributes associated with variations in sales and consumption of poultry products; (2) measure effects of various methods of processing, packaging, and merchandising on sales; and (3) measure effects of different types of consumer education and advertising on sales.
Agr. Econ., Rural Sociol. 1172-A

Pa. The Effect of Marketing Changes upon Marketing Costs, and Sales of Poultry Meat with Special Emphasis on Stewing Chickens. (1) Learn relation of various systems for procurement, handling, plant processing, and distribution of poultry to marketing costs and ability of producer and processor to market their product. (2) Devise from above data and previous research a probable least cost system for procurement, handling, processing, and distribution of poultry meat in light of apparent demand for products and compare expected costs with those of current systems.
Agr. Econ., Rural Sociol. 1326 (NEM-21)

R. I. Costs Associated with Recent Technological and Organizational Changes in Marketing Poultry Meat Products. Learn effect on marketing costs of methods and procedures of providing consumer services in marketing of poultry meat products.
Agr. Econ. M-109 Coop. AMS

R. I. Factors Determining Costs of Alternative Techniques of Processing and Distributing Poultry Meat in Rhode Island. (1) Learn different marketing systems in State and compare costs. (2) Develop systems of reducing cost of given marketing services.
Agr. Econ. M-112 Coop. AMS (NEM-21)

REGIONAL PROJECTS

NCM-7 Maintaining Quality of Poultry Products in Market Channels. To (a) study the basic causes of deterioration in quality of eggs and poultry meat during the marketing process; (b) develop methods that are commercially feasible for maintaining or improving the initial quality of poultry products while in the channels of trade; and (c) develop laboratory and commercial methods for accurately measuring and/or predicting quality and quality losses in eggs and poultry meat in market channels.

Contributing projects: Part 9, Section b: Iowa, Kans., Mo. Part 9, Section c: Ind., Mich., Minn., Nebr., Ohio, S. Dak. Part 26: Ind., Iowa, Kans., Mich., Ohio, S. Dak.

WM-33 Improving the Preservation and Marketability of Beef and Lamb. To (1) evaluate or develop methods by which the qualities of fresh or preserved beef and lamb can be better defined; (2) develop procedures for improving the preservation and marketability of beef and lamb; (3) develop new or expanded food uses for beef and lamb.

Contributing projects: Calif. and Oreg. (both projects in Part 26.)

OTHER REGIONAL RESEARCH PROJECTS REFERRED TO IN THIS SUMMARY BUT SUMMARIZED ELSEWHERE

NC-1	Improvement of Beef Cattle Through Breeding Methods. See Part 4, Section a.
NC-2	Improvement of Dairy Cattle Through Breeding. See Part 5.
NC-31	Effect of Large Quantity Preparation and Service on Quality and Yield of Meat, Poultry, Vegetables, Milk and Milk Products. See Part 13, Section d. Also see Part 19.
NCM-14	Economic Appraisal of the Transportation, the Grade-Price Quotation Relationships and the Processing of Poultry Products in the North Central States. See Part 14, Section e.
NE-6	Genetic and Physiologic Bases for Poultry Improvement. See Part 19.
NE-8	Essentials of Poultry Housing for the Northeast. See Part 3, Section c. Also see Part 19.
NE-15	Control and Measurement of Flavor Changes Caused by the Application of Pesticides to Growing Crops. See Part 7, Section d. Also see Part 13, Section d.
NEM-21	The Effect of Marketing Changes Upon Marketing Costs and Upon Demand and Consumption of Poultry Meat. See Part 14, Section e.
S-10	The Improvement of Beef Cattle for the Southern Region Through Breeding Methods. See Part 4, Section a.
S-29	Improving the Production of Early Milk Fat Lambs. See Part 4, Section b.
SM-7	Marketing Livestock in the South. See Part 14, Section c.
SM-13	Why Consumers Select Specified Foods. See Part 9, Section c. Also see Part 13, Section e.
SM-15	An Economic Appraisal of the Competitive Position of the South in Marketing Eggs and Broilers. See Part 14, Section e. Also see Part 19.

SM-19 Motivating Factors in Consumer Purchases of Beef.
See Part 14, Section c.

W-1 The Improvement of Beef Cattle Through the Application of Breeding Methods.
See Part 4, Section a.

W-46 The Effects of Environmental Stresses on Range Cattle and Sheep Production.
See Part 4, Sections a and b.

LIST OF COMPILATIONS OF FEDERAL-GRANT RESEARCH PROJECTS AT STATE AGRICULTURAL EXPERIMENT STATIONS

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
1	Agricultural Chemistry	Agricultural Chemistry
2	Agricultural Economics	a. Prices, Incomes, & General Studies of Commodities & Industries
		b. Farm Management
		c. Land Economics
		d. Farm Finance & Taxation
3	Agricultural Engineering	a. Land & Water Use & Development
		b. Power Machinery & Equipment
		c. Farm Structures & Materials
4	Animal Husbandry	a. Beef Cattle
		b. Sheep & Goats
		c. Swine
5	Dairy Husbandry	Dairy Cattle
6	Dairy Technology	Dairy Technology
7	Entomology & Economic Zoology	a. Field Crop Insects
		b. Fruit, Nut & Vegetable Insects
		c. Miscellaneous Insects & Economic Zoology
		d. Insecticides
8	Field Crops	a. Cereal Crops
		b. Oil, Fiber, Tobacco & Sugar Crops
9	Food Science & Technology	a. Food Chemistry, Microbiology, Sanitation & Public Health
		b. Food Engineering, Processing, Product and Process Development, Utilization and Waste Disposal
		c. Food Quality & Standards, Acceptance, Preference, & Marketing
10	Forage Crops, Pastures & Ranges	Forage Crops, Pastures & Ranges
11	Forestry	Forestry

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
12	Fruits & Nuts	Fruits & Nuts
13	Home Economics	a. Human Nutrition b. Housing c. Clothing & Textiles d. Foods-Consumer Quality & Utilization e. Household Economics & Management
14	Economics of Marketing	a. Field Crops b. Fruits & Vegetables c. Livestock, Meats & Wool d. Dairy Products e. Poultry & Poultry Products f. Forest Products & Ornamental & Drug Plants g. Cross-Commodity & Functional Studies
15	Meteorology	Meteorology
16	Ornamental & Drug Plants	Ornamental & Drug Plants
17	Plant Pathology & Bacteriology	a. Plant Pathology, Botany, & Diseases of Miscellaneous Crops b. Diseases of Field Crops c. Diseases of Fruit Crops d. Diseases of Vegetable Crops
18	Plant Physiology & Nutrition	Plant Physiology & Nutrition
19	Poultry Industry	Poultry Industry
20	Rural Sociology	Rural Life Studies
21	Soils	a. Soil Chemistry & Microbiology b. Soil Fertility, Management & Soil-Plant Relationships c. Soil Physical Properties, Conservation & Classification
22	Vegetables	a. Vegetable Crops b. Potatoes
23	Veterinary Science	Veterinary Science
24	Weeds	Weed Control